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THE

FARMER's LETTERS.

VOL. I.

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THE FARMER's LETTERS TO THE PEOPLE of ENGLAND:

CONTAINING

The SENTIMENTS of a PRACTICAL HUSBANDMAN, on various Subjects of great Importance; Particularly

- The Exportation of Corn.
- The Balance of Agriculture and Manufactures.
- The preſent State of Huſbandry.
- The Circumſtances attending large and ſmall Farms.
- The preſent State of the Poor.
- The Price of Proviſions.
- The Proceedings of the Society for the Encouragement of Arts, &c.
- The Importance of Timber and Planting.
- Emigrations to the Colonies.
- The Means of promoting the Agriculture and Population of Great Britain, &c. &c.

To which are added,

SYLVÆ:

OR OCCASIONAL TRACTS ON HUSBANDRY and RURAL ŒCONOMICS.

The THIRD EDITION, corrected and enlarged.

IN TWO VOLUMES.

VOLUME I.

> Quicquid in orbe vides, paret *mihi*‡: Florida tellus
> Cum *volo* fundit opes: ſcopulique, atque horrida ſaxa
> Niliadas jaculantur aquas. PETRON.
>
> ‡ *Agriculturæ* ſcilicet.

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LETTER I.

My Lords and Gentlemen,

THE preſent age is too enlightened to hold agriculture in contempt; and has experienced too many advantages reſulting from the improvement of land, to liſten with attention to general declamations on its importance: an author who treats of a ſubject of acknowledged utility, that is practiſed with any ſpirit, muſt preſent his Readers with new facts, or endeavour to elucidate old ones: he muſt dwell on particulars; and go, if poſſible, to the bottom of his ſubject.

That the improvement of eſtates is a buſineſs of great conſequence, none will diſpute: an hundred writers have proved this, which is much the ſame as proving that light is preferable to darkneſs, or that a man had better travel on a turnpike than a bog; I ſhall not waſte any of your time, or my own, in diſcuſſing ſuch general matters: I mean in theſe papers particularly to explain ſome matters of conſequence that have been omitted by former writers.

Many of you poſſeſs very improvable eſtates:—and your certainty of this fact, is frequently all you know of the matter. This is no reproach; men of fortune, of education, of a turn of mind that leads to other amuſements, cannot be ſuppoſed to be connoiſſeurs in barns and hogſties, ditches and dunghills, or clays, and ſands. To ſuch I beg leave to remark, that my deſign is not to initiate them into the minutiæ of ſuch myſteries, but to point out an eaſy method for them to give the proper orders to their ſtewards, overſeers, *&c.* who manage for them. To others, who have a knowledge of theſe matters, I ſhall only offer my ideas, as hints for their conſideration; eſpecially as many of them may have attended to ſome particulars, without having troubled themſelves ſo much as to reduce their knowledge to a regular plan of operation.

I ſhall endeavour to prove, that ſuch of the Nobility and Gentry as have improvable eſtates, have it alſo in their power to raiſe large ſums of money or great incomes, by means of their land, and in a ſhort ſpace of time—and with no more hazard, and in many caſes not ſo much, as in an application to the miniſtry for a *place*, or the city for a *wife*; and I ſhall endeavour to explain *how* this ſhould be attempted.

Improvements admit of two grand diviſions, thoſe in *cultivated*, and thoſe in *uncultivated* countries; the rules of conduct differ much in theſe, ſo that they abſolutely require a diviſion.——I ſhall begin with the former.

Let me farther previouſly obſerve, that in theſe ſheets, I ſhall not preſume to adviſe any improvement, which I have not either practiſed myſelf, or viewed the execution by others. I ſhall on no account ſubſtitute conjecture, where fact and experience can be the guide.

Let me alſo obſerve, that I mean not to make any of you *farmers*—but *improvers*. To improve your eſtates, not to occupy yourſelves, but to relet at advanced rents.

By *improveable* eſtates, I mean ſuch as will pay the current intereſt for the money expended, and leave a *clear* profit in rent from 5 to 20 *per cent.* which profit may be annually enjoyed, if *income* is the object; or mortgaged, if the raiſing *a ſum of money* be the deſign.

LETTER II.

I BELIEVE you will readily allow that many perſons of conſiderable eſtates, who are involved in difficulties for want of money, might eaſily extricate themſelves by giving half the application to improvements, which neceſſity forces from them to ways and means injurious to themſelves, their families, and their eſtates.

To aſſert that a man who had run out his whole eſtate, could grow rich by improving it, would be an abſurdity: ſuch an aſſertion would have too much the air of quackery: but the utility of the conduct I recommend, by no means depends on ſuch extravagant capabilities. Many of the landlords of theſe kingdoms, are involved in difficulties for want of income, without being near a ſtate of ruin. If we were to conclude every man ruined that is in debt, the Lord have mercy on three-fourths of his Majeſty's ſubjects.

When expence exceeds income, it muſt either be provided for in ſome regular manner, or recoil on the ſucceeding income, and become diſtreſſing: in ſuch caſes money muſt be raiſed, and it can only be had we may ſuppoſe by mortgage: in ſuch a ſituation when income is leſſening, and at the ſame time that expences increaſe, ſurely it is particularly expedient to practice ſome method of providing new funds.

Now I am ſenſible, that raiſing of money has, in all caſes, charms ſufficient to attract the notice of mankind: but I deſire particularly to ſpecify inſtances that *peculiarly* call for the improvements which I recommend: if they can be practiſed with ſucceſs by men involved in untoward circumſtances, it is ſufficiently clear that they may be executed by thoſe who enjoy clear incomes: beſides, there is no great uſe in ſpeaking on ſuch ſubjects to men who are content to live in the exact line their income chalks out: ſuch have not the inducement to act with ſpirit, that would actuate others who are ſpurred on, not only with the hope of *future profit*, but alſo with the preſſure of *preſent evils.*

Suppoſe the poſſeſſor of an eſtate which brings in clear two thouſand pounds a year, to mortgage it for ten thouſand pounds, at 4 *per cent.* this reduces his income to 1600 *l.* a year: and in whatever manner the ten thouſand pounds were ſpent (unleſs in ſome profitable undertaking; or in one expence which has no return, nor attendant coſts) we muſt eſtimate the contracting ſuch a debt as a mark that the former income was regularly exceeded; and conſequently that the exceſs will continue: ſuppoſe this exceſs only 200 *l.* a year, with no greater deduction, his future income becomes no more than 1400 *l.* beſides the numerous heavy expences peculiarly attending ſuch perſons who ſuffer the balance of their accounts to be much on the wrong ſide of the page. It is evident, that the ſituation of ſuch a gentleman is extremely diſagreeable:—that he muſt be conſtantly cramped for want of money, and that he muſt ever remain utterly unable to expend extraordinary ſums, however urgent the call. Advantageous matches for his children; opportunities of advancing himſelf in point of intereſt; or of enlarging or promoting his amuſements:—whatever may be the occaſion of a demand for money; it is clear that he

can

can never anſwer it without a freſh reduction of his income, by a new unprofitable mortgage.

I ſuppoſe his eſtate improvable: in this ſituation, I perſuade him to undertake the improvement of it: he has no money; let him borrow it; very different will ſuch a mortgage be, from one which remains a dead weight without returning any benefit. He expends 500 *l.* then 1000 *l.* after this 1500 *l.* and ſo on, to the amount we will ſuppoſe of 10,000*l.* The intereſt 400*l.* a year. If his total profit is no more than 14 *per cent.* he clears 10, which is 1000 *l. per* year income. This profit pays the intereſt of his original mortgage, —the 200*l.* a year exceſs in expences, and leaves a ſurplus of 400 *l.* a year. Thus is he better than when he firſt began the world by 10,000 *l.* in pocket, and 600 *l.* a year: a ſtriking contraſt to his late unfortunate ſituation!—In this ſlight ſketch, I merely unfold the conſequences of improvements, it ſhall be the buſineſs of ſucceeding letters, to point out the particular means.

But let me at preſent further obſerve, that large ſums of ready money are the ſoul of improvements: in this reſpect, agriculture is the ſame thing as commerce: if a merchant has an eſtate and wants money, he does not trade out of his landed ſavings, but mortgages for the ſum he wants, which becomes in one ſum of ten times the conſequence of the ſame amount in an annual trifling portion. If the gentleman in the preceding ſuppoſition, inſtead of acting with ſuch vigour, as to have the command of 10,000 *l.* at once, had only appropriated 2 or 300 *l.* a year from his income to the improvement; the advantages there ſtated, would have been the work of near forty years, and at laſt not equal to the ſame improvements operated in a twelfth part of the time. For theſe and many other reaſons of undoubted importance, I venture to aſſert, that the improvements in queſtion ought never to be provided for by a ſmall annual ſum, which is *conſequently* liable to a thouſand different appropriations; but always ſecure in a proportioned ſum raiſed at once by mortgage or otherwiſe, and demandable at different times at pleaſure.

The Nobility and Gentry ought in this reſpect to act like merchants: they ſhould firſt raiſe a capital on which to trade; and this capital once raiſed, ſhould be ſacred to the intended purpoſe: there can be no doubt then, but the appropriation of it will ever be attended with great and ſpeedy profit.

I apprehend no one can be of opinion that this method of raiſing money, is open to the numerous and inſurmountable objections which oppoſe themſelves by thouſands to all others. We have but to turn our eyes towards the perſons, who, neglecting the advantages their eſtates offer them, turn to other means of ſupport. Their example is, in all caſes, ſurely ſufficient to deter the prudent from truſting to ſuch precarious dependences.

LETTER III.

I SHALL beg your leave, in the next place, to ſuppoſe a landlord, from the preceding or other motives, to determine the improvement of his eſtate; in purſuance of which he has procured a large ſum of money by mortgage, with which he has bought ſtock, ready for ſelling out as faſt as wanted. In this ſituation, his firſt buſineſs muſt be to gain a complete knowledge of his eſtate; for without this grand preliminary, all that ought to follow would be uſeleſs.

Let me here premiſe, that the hints which I am going to offer, are addreſſed in particular to the perſon who plans and executes the improvement: whether it be the landlord himſelf, or an agent acting under him. As to common ſtewards, that have for ſome years had the management of the eſtate:——not one in ten are to be truſted; and this for ſeveral reaſons. Firſt, the improvement will be a great addition to his buſineſs and trouble; and conſequently he will have no good heart to it. —Secondly, not many common ſtewards are ſuch as to allow in prudence the truſting them ſo much as would be neceſſary, if the maſter happened to be ignorant himſelf.——Thirdly, ſtewards who have been ſome years on an eſtate, are too much connected with the tenants, for the execution with due ſpirit of ſuch improvements as I am going to recommend.

For theſe reaſons, I ſhould adviſe a landlord by all means to get acquainted with country buſineſs himſelf, at leaſt to a degree ſufficient to dictate in material points poſitively to thoſe under him, and to admit of no excuſes for non-compliance—— or a dilatory execution: but if he is ignorant and remains ſo, I would adviſe that he employs ſome perſon of acknowledged abilities to undertake the improvement: ſome penetrating, ſkilful cultivator, that would be to his huſbandry (the range of utility) what a Mr. *Brown* is, in that of elegance.——But in what hands ſoever the work be placed, I venture the following

ing ideas, as hints to aſſiſt in the execution *.

To return:—The firſt buſineſs is that of taking an exact and particular account of the eſtates to be improved. Maps and ſurvey-books are to be ſuppoſed at hand: but the account that is firſt to be procured, is the ſtate of the tenants huſbandry reſpecting ſtock; for this purpoſe let blank books be provided, ruled in a proper manner for including every particular in columns; one for each of the following particulars:

Place.
Soils.
Tenant.
Leaſe.
Acres.
Graſs.
Arable.
Wood.
Sheep walk.
Incloſed.
Open.
Rent.
Repairs.
Ditto *per* acre.
Horſes.
Oxen.
Fatting, ditto.
Cows.
Young cattle.
Sheep.
Hogs.
Sundry remarks.

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* I need not ſurely obſerve, that when I call an eſtate improveable, I ſuppoſe it unlet on long leaſes: an eſtate that is not at command is in this reſpect out of the queſtion.

It would be of advantage to add the acres of wheat, barley, oats, peaſe, *&c.* *&c.* but they are ſo varying, that it would be too difficult.

Now the utility of ſuch a general view as this, muſt be ſufficiently obvious: a random notion that farms are underlet, ſhould not be depended on as ſufficient grounds for raiſing rents. The real ſtate of the caſe ſhould be at all events diſcovered; this table would greatly aſſiſt in gaining ſuch knowledge. Suppoſe a farm of 40 *l.* a year has 20 cows, and an hundred ſheep on it: theſe are circumſtances which by no means coincide in common: it ſhould have a query againſt it. Suppoſe 200 acres of land, half of it graſs, have only 5 cows and 50 ſheep, and a few young cattle on them: ſuch a diſproportion requires an explanation, that it may be ſeen if the tenant is not an avaricious ſloven, who *lives* on a rent of favour—— inſtead of growing rich by induſtry. Such inſtances are innumerable.

Suppoſe clay land is let at 5 or 6 *s.* *&c.* an acre: the circumſtance is alone very ſuſpicious.

Suppoſe one farmer with an hundred acres of graſs at 10 *s*. keeps 40 cows; and another with about the ſame quantity of land at the ſame rent keeps only 25 without a proportion of other cattle—theſe are contradictions that require explanation.

It would be endleſs to ſtate every caſe that could attract notice, but theſe are ſufficient to prove that ſuch a table would be a very conſiderable means of gaining important knowledge.

Another circumſtance ſhould be enquired and minuted with attention, which is the rent of the lands adjoining each farm.

The ſituation and compactneſs of the fields appearing in the maps; this point is of conſequence.

The ſubſtance of the tenant ſhould not be taken as a guide, unſeſs in extraordinary inſtances: for I am perſuaded, the richeſt tenants, upon an average, are on lands high let. Their being poor proves nothing againſt a farm.

All theſe points are to be attended to, that it may be known what farms demand the firſt attention, becauſe it would be adviſable to begin with thoſe which were moſt capable of improvement. Provided they were nearly contiguous. It being an object of much conſequence, to contract your attention when it can be done.

But the grand intelligence reſults from viewing the farms attentively.

If unencloſed, and you have a power of incloſure, reaſon ſpeaks ſufficiently to that head.

If the eſtate is divided into very ſmall farms, the expences of repairs probably ſwallow up a conſiderable ſhare of the rent. A different arrangement of the land then becomes neceſſary.

If the fences upon incloſed farms are in bad order—the hedges indifferent and out of repair——or the ditches too ſmall, and almoſt filled up:——or if incloſed with walls, and they in bad repair, it is ſufficiently evident that theſe points ſhould be differently conducted, and (unleſs the tenants are bad farmers) probably would, were they able to afford it——but as the landlord has raiſed money purpoſely to remedy ſuch and all other evils——that is an argument of no force with him.

If the lands are wet, but undrained: nothing can be clearer than the neceſſity of ſuch a work.

If the paſtures and meadows are over-run with ant hills, buſhes, brambles, *&c.* ſuch are the marks of bad huſbandry, and muſt no longer appear——If a tenant can afford to pay rent for ſuch, no proof is requiſite that he can pay a greater rent for better land.

If a farm conſiſts all of arable land, a tenant muſt find great inconvenience for want of ſome graſs——he cannot, or will not lay any down—but that is not the caſe with the landlord.

If the graſs fields of a farm are without water, the inconvenience and miſchief to cattle is very great; but where is the tenant that will dig ponds?

If the teams, and carts, and waggons on a farm are ſpeedily worn out with carting through home-roads that are very deep and bad, the annual expence to a tenant is very great; but you are not to expect that they will make good roads, how well ſoever it may anſwer to a landlord.

If the buildings on a farm are extremely inconvenient---bad in themſelves---too few---or ſituated in too ſtraggling a manner; no tenant could with any prudence remedy the evil---but it would anſwer greatly to any to recompence their landlord for it.

If marle, chalk, clay, limeſtone (unknown or not uſed, *&c.*) be under the fields, and of a nature to improve them in a great and laſting manner, and the tenants have omitted to make uſe of them; then the landlord ſhould execute ſuch undertakings, paying himſelf in rent a ſufficient intereſt for his money.

I ſhall not multiply ſuppoſitions; but an attentive view of theſe and other particulars, will ſhew a landlord at once, whether his farms are improvable or not. If he finds theſe matters out of order---or deficient, there can be nothing plainer than the undoubted profit of remedying them: in many caſes, the grand profit is to the tenant, who ought to improve theſe objects; but moſt tenants being poor---of contracted views---and jealous of laying out money which will not immediately come in with *cent. per cent.* profit—eſtates would remain for ever in diſorder before they would improve. The landlord ſhould therefore interfere, and laying out the money, repay himſelf in rent, by which means he takes that profit which the tenant loſes.

An attentive view being in this manner taken, and a complete knowledge of the ſtate of all the farms gained, the next buſineſs is to conſider of the proper manner of carrying the deſigned improvement into execution. But allow me to conclude myſelf at preſent, *&c.*

LETTER IV.

IT has not been an uncommon practice, when a landlord has determined to raiſe his eſtate, to give notice to all the tenants at once, that on ſuch a day their rents will be augmented in a ſpecified proportion; and that all who do not chuſe to agree to the propoſition, muſt then quit. There are a thouſand objections to this method---too many indeed to inſert them all at preſent, but I ſhall touch upon a few of the moſt glaring.

The buſineſs is done by halves, for without real improvements being made, the new tenants will certainly pay no more than the value of the farms, in the ſlovenly condition they find them: now any riſe of rent to that point only, is by no means the object a landlord has in view, who acts upon the principles which I have explained.

Secondly, A gentleman ties his hands in this method, before they have half done his buſineſs. After turning out the old tenants at a word, he may be aſſured the new ones will have no confidence in him, and give no advanced rent without long leaſes: if they take them with none, or ſhort ones, it is undoubted the riſe of rent does not even extend to the value of the farms unimproved: letting farms by long leaſes unimproved is wretched management, for it precludes the undertaking, however deſirous a man may be of it---or however able to execute it.

Thirdly, It is an unjuſt method; for to turn a good tenant out at a word, who has laid out large ſums of money in improvements, in confidence of being ſecure, is acting with a ſeverity and avarice that is not commendable. A diſtinction ſhould always be made between good huſbandmen and ſlovens.

Fourthly, It is very unpopular; this to many people is of little matter, but to thoſe of the Nobility and Gentry of old and great eſtates, who make popularity an object, it is of ſome conſequence to preſerve appearances of this ſort. Now a ſudden and undiſtinguiſhable riſe, merely in the arbitrary ſtile, *you ſhall pay ſo much, or quit*; carries many marks of mere rapacioufneſs;—of ſquandering the rental at *London*, and then coming to fleece the tenants: but on the contrary, when great improvements are made in the farms, the buſineſs comes on gradually, the minds of the neighbourhood by degrees, of themſelves, look for a riſe of rent; as they cannot ſuppoſe ſuch work executed merely through the landlord's love and affection for his tenants: in ſuch a ſituation, the raiſing an eſtate 30 *per cent.* would not make half the clamour that an increaſe of 10 would, in the ſummary method of which I am at preſent ſpeaking.

For theſe reaſons, and others too numerous to mention here, I cannot but diſapprove much of this method of raiſing rents. It is therefore to be conſidered, in what manner the work of improvements is to be carried on.

It is a principle with me, that a gentleman, when he has large undertakings of this ſort in his hands, ſhould *farm* no more of his land than requiſite for the ſuperior buſineſs of *improving*. Occupying his own land is an excellent amuſement; but I am not inventing methods for amuſing gentlemen, but for enabling them to increaſe their fortunes, which will never be done in a ſufficient degree by farming.

For this reaſon, the work of improvement, I think, ſhould, if poſſible, be executed while a tenant is on the land: in all the leaſes I remember to have ſeen, a reſerve is made to the landlord, of free ingreſs and regreſs to and from every part of the premiſes for all buſineſs of repairs, *&c.* which I apprehend would in law be highly ſufficient for the preſent purpoſe. In the farms of tenants at will, no difficulty would be found.----Upon this plan, therefore, the improvement ſhould be begun, at ſuch a time that it may be completely finiſhed by the expiration, or other determination of the old leaſe or tenure——ready for a new tenant, in caſe the old one goes out.——But if any circumſtances prevent the landlord from executing his deſign before the expiration of the old leaſe or tenure, then he ſhould, on all accounts, take the farm into his own hands, till the improvement is effected, and not relet it under a ſpecification of the intended works: this is a very important point, as he may be aſſured he will find it much eaſier to gain his propoſed rent from a man who *views* the farm in its perfect order, than from one who is only *told* of it.

Executing the improvement while the old tenant is on the land, has another advantage; by means of it he has an opportunity of continuing, if he likes the terms; which is an object of ſome conſequence to both the landlord and the tenant.

If a gentleman cannot, according to the terms of the old leaſe, begin till its expiration, then I ſhould adviſe his compromiſing with the tenant, and paying him a ſum of money for liberty to enter; very few would think of refuſing it. In caſe of ſuch a refuſal, through obſtinacy or an accidental interruption in the gentleman's deſign——ſo that he has the land in his hands; he may probably have ſtewards, baileys, hinds, or ſome ſuch people about him, who would perſuade the cultivating it on his own account for a year or two; but let him be cautious of ſuch a conduct——and remember, that his grand buſineſs is improving, not farming; and that the leſs his attention is divided, the better: but this extends no further than thoſe parts of farming, which concern not the improvement. The land muſt be kept in proper order, with a view to relet——and the farming ſhould extend no further.

At whatſoever time the work is begun, let it be a particular attention to diſpatch it as faſt as poſſible; with plenty of money in hand, and an active ſpirit, I think ſix months ſufficient to improve moſt farms ——a year for any in the kingdom. Building muſt be done in ſummer; whereas fencing muſt be executed in winter: this renders a year neceſſary, in which ſpace of time, from one to two thouſand acres may, I am confident, be eaſily brought into complete order.

But one point of great conſequence is, the taking proper meaſures to *be able* to execute the ſcheme ſpeedily; if a perſon expects the buſineſs to be done by his old carpenters, maſons, labourers, *&c.* he will be miſerably deceived. Let the undertaker by all means *contract* with ſeveral artificers of the ſame trade at once, each, for inſtance, to undertake a farm; and let him take care that they are tied to *time* as well as *work*. A great number of labourers ſhould alſo be taken into pay by the piece, at rates that will yield them better earnings than the common pay of the country: a ſmall riſe upon this, will enſure any number that may be wanted.——A ſufficiency of maſter carpenters, maſons, &c. and labourers, ſhould at all events be engaged, becauſe it is a point of the firſt conſequence to get the whole improvement completed within a year at the fartheſt.

Suppoſing the improver to have conſidered his buſineſs thus far with ſufficient attention——he muſt next proceed to particulars——Theſe I ſhall beg leave to conſider under the following heads:

1. The arrangement of the lands.
2. The buildings.
3. The fences.
4. Proportion of graſs and arable lands.
5. Draining.
6. Clearing from rubbiſh and bringing into order, and manuring.
7. Roads.
8. Water.

It will be conducive to perſpicuity to treat of each of theſe ſeparately.

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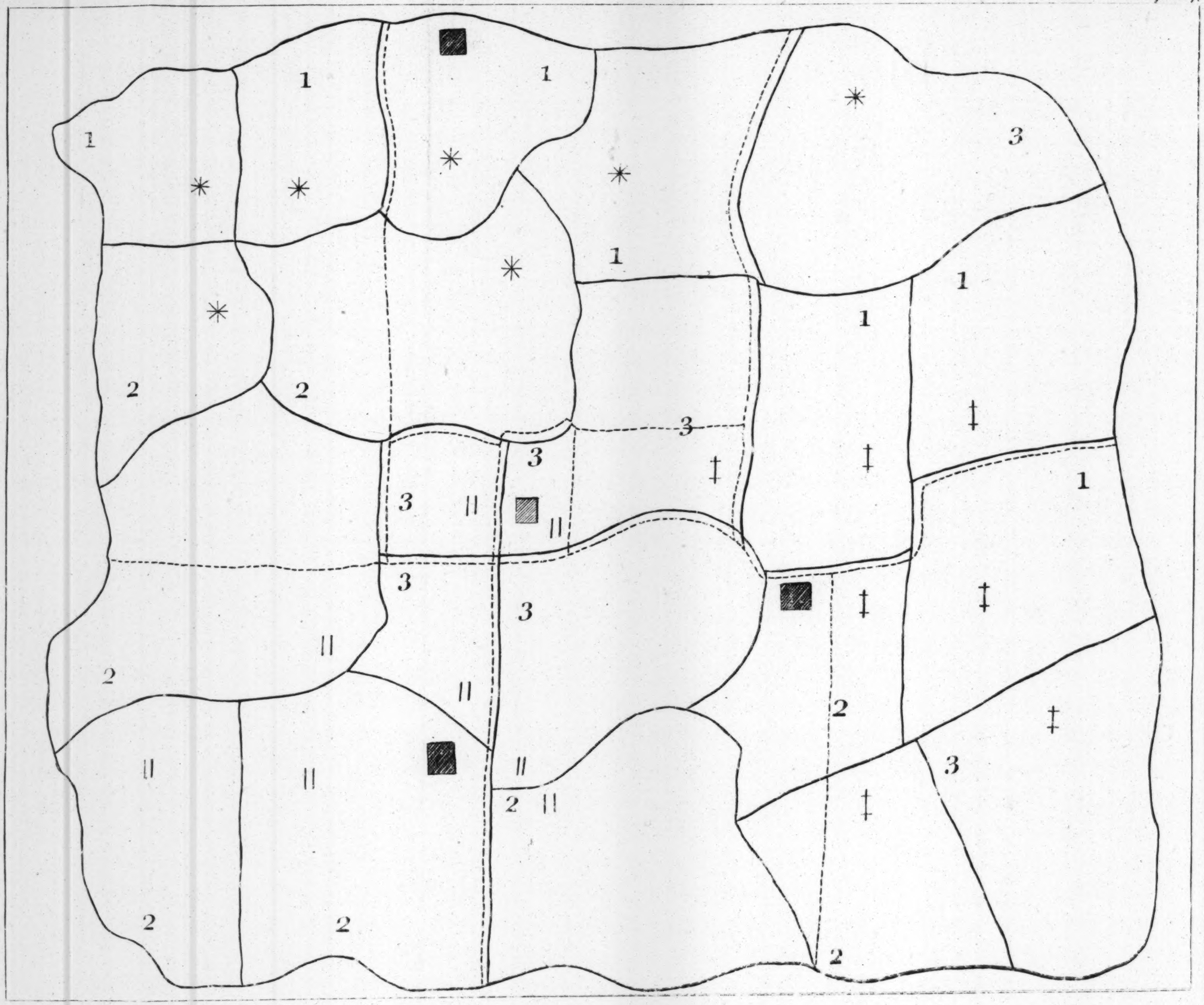
Pl. I. pa. 27.



LETTER V.

THE firſt object of the improver's attention muſt be the arrangement of the lands. It is a very common thing in old farms, to have the fields in ſuch a ſtraggling ſituation, that the inconvenience to a tenant is prodigious. Suppoſe the annexed plan, Plate 1. to repreſent the fields of three farms, diſtinguiſhed by Numbers 1, 2, and 3. it is very evident, that the ſituation of the fields is inconvenient to a very great degree; for moſt of them are far removed from the dwellings. Now the difference between ſuch an arrangement and a more perfect one, of throwing to each houſe the fields neareſt, muſt be very manifeſt, by ſuppoſing thoſe marked *, ||, and ‡ laid to their reſpective houſes. The difference of the value of the farms from this ſingle alteration would be great.——I ſtate this under the ſuppoſition that the farms are of a proper ſize; if they are too ſmall, all three might be laid together,

gether, the buildings erected at †, and the fields thrown into the diviſions marked by dotted lines; which would render them of a ſize proportioned to that of the farm.

This point of laying the land as compact as poſſible, ſhould never be neglected: it is a matter of great importance; inſomuch that this ſingle circumſtance would in many farms raiſe the rent not leſs than from 1 *s.* 6 *d.* to 3 *s.* an acre, and in ſome caſes even more.

Reſpecting the ſize of the farms, the improver ſhould be guided by the demand for farms. In ſome countries very ſmall farms let at ſuch great rates, that the ſuperiority of rent would much more than balance the article of repairs:——In ſuch countries a good number of ſmall farms, from 30 to 50 acres each, ſhould be formed. In many places, the middling-ſized farms, from 200 to 500 acres, are much the moſt readily let, and at the beſt rents. In others again, the largeſt of farms bring as high a rent for the land as the ſmalleſt. Whatever the country has brought the moſt into requeſt, ſhould be the aim in the new arrangement of an eſtate. It ſhould, however, in general be regarded as a maxim, that the larger the farm, while the rent *per* acre is not lowered on account of ſize, the more advantageous to the landlord; and particularly, when many new buildings are to be erected, or old ones completely repaired. For ſuppoſing a new farm-houſe to 100 acres of land coſts 150 *l.* another to a thouſand acres undoubtedly will not come to ten times as much, nor near it; ſo that the amount of buildings on ſmall farms will render them very diſadvantageous, unleſs the ſtate of the country occaſions a particular demand for them.

Another circumſtance to be conſidered, is the proportion between the ſize of the fields and that of the farm: ſmall fields ſuit ſmall farms, but are very ridiculous for large ones. In an hundred acres divided into ſmall incloſures, a vaſt proportion of the land is loſt in hedges, ditches, borders, *&c.* the maintaining the fences is a conſtant expence to the tenant; and the ſmallneſs of the fields is a loſs in ploughing from the ſhortneſs of the furrows: all theſe circumſtances render large fields greatly preferable to ſmall ones——unleſs the farm be ſmall, in which caſe the neceſſity of ſmall ones more than balances ſuch circumſtances. And to the landlord alſo in bringing his eſtate into order, the difference is great, for the ſmaller the fields, the more the expence of fences— gates, *&c.*

The number of the arable fields on a farm need not be more numerous than the crops that compoſe the courſe—one field to each crop. Suppoſe the courſe 1 turnips, 2 barley, 3 clover, 4 wheat; four fields would do for the whole arable: indeed, in ſome caſes eight would be preferable, but only on account of being able, without herdles, to feed half the clover and mow half; which ſingle circumſtance of only one crop is not a reaſon ſtrong enough for doubling the fences. But whatever be the courſes, a field for winter corn——one for ſpring corn—one for turnips—one for clover, and another for fallow, would I apprehend do. But, without ſtating ſo few diviſions, it is clear cnough, that there is no occaſion for the numerous incloſures to be found in moſt old farms.——The graſs ſhould be divided into three or four diviſions for convenience.

LETTER VI.

THE buildings of a farm are one of the moſt important objects of an improver's attention. If the old ones are in very bad repair, or extremely ill contrived; or if a new arrangement of the lands take place, ſo as the old ones will not ſuffice; in any of theſe caſes, new ones muſt be erected. And as building is every where an expenſive buſineſs, it demands a particular attention.

The dwelling-houſe is the firſt object of attention. The old one ſhould be accurately examined, and the following particulars obſerved:

That it be proportioned to the farm; if larger than requiſite, and many repairs to be done to it, let it be leſſened. I ſhall preſently ſpeak of the proper ſize of houſes.

That it be covered with tile or ſlate; if it is a thatched one, on no account think of repairing it: your buſineſs is not to hunt after cheapneſs, and the practice of thoſe ſuccedaneums of ſpirited conduct which form the management of men who have no money in their pockets; but to expend whatever ſums good intereſt can be got for: beſides, thatch is vile œconomy——it is ſaving a ſhilling to-day to ſpend half a crown next week after it: on many accounts, one object in all farm-houſes, barns, ſtables, *&c.* is to ſubſtitute tile or ſlate in the room of thatch.

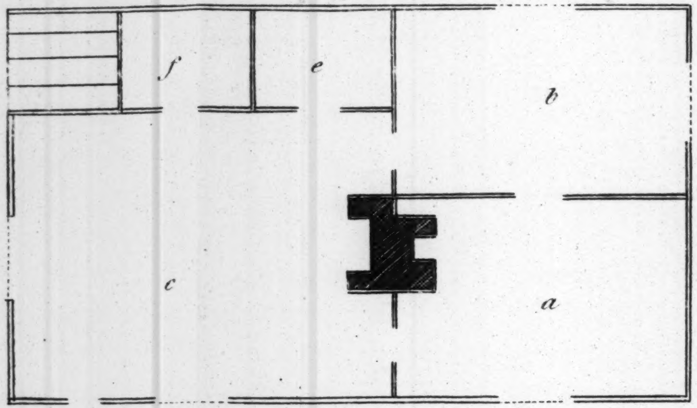
That all the timbers, walls, pavements, chimnies, floors, windows, *&c.* be put into perfect repair.

That the reſpective conveniences of dairy, ſcalding-houſe, brew-houſe, pumps, *&c.* be made perfectly complete.

In caſe the arrangement of the lands requires new houſes to be erected, then it is a matter of much importance that the diſpoſition of all the parts of ſuch new houſes be as well contrived as poſſible, that a given ſum of money may purchaſe as many conveniences as poſſible, and that every part of the building be proportioned to the farm. The deſigns of farm-houſes which I have ſeen publiſhed are very faulty; not one in ten diſplay the leaſt acquaintance

Pl. II. pr. 33

Fig. 1.



10 Feet

Fig. 2.

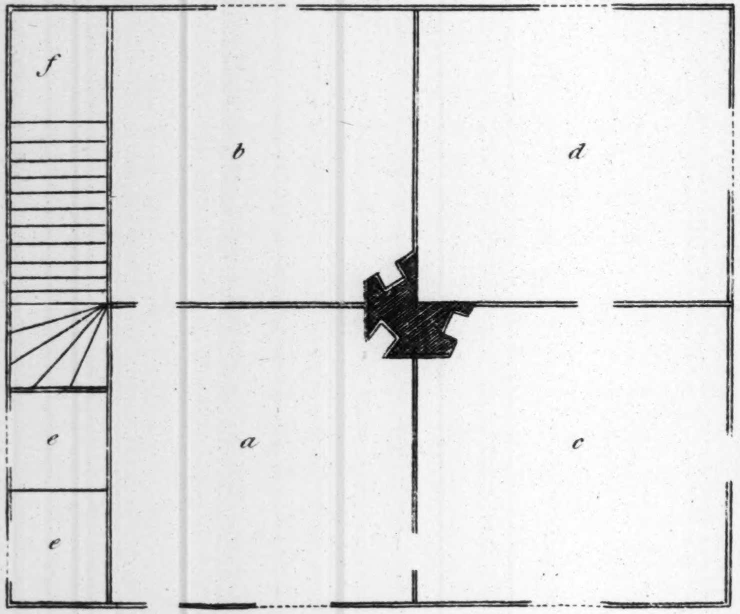
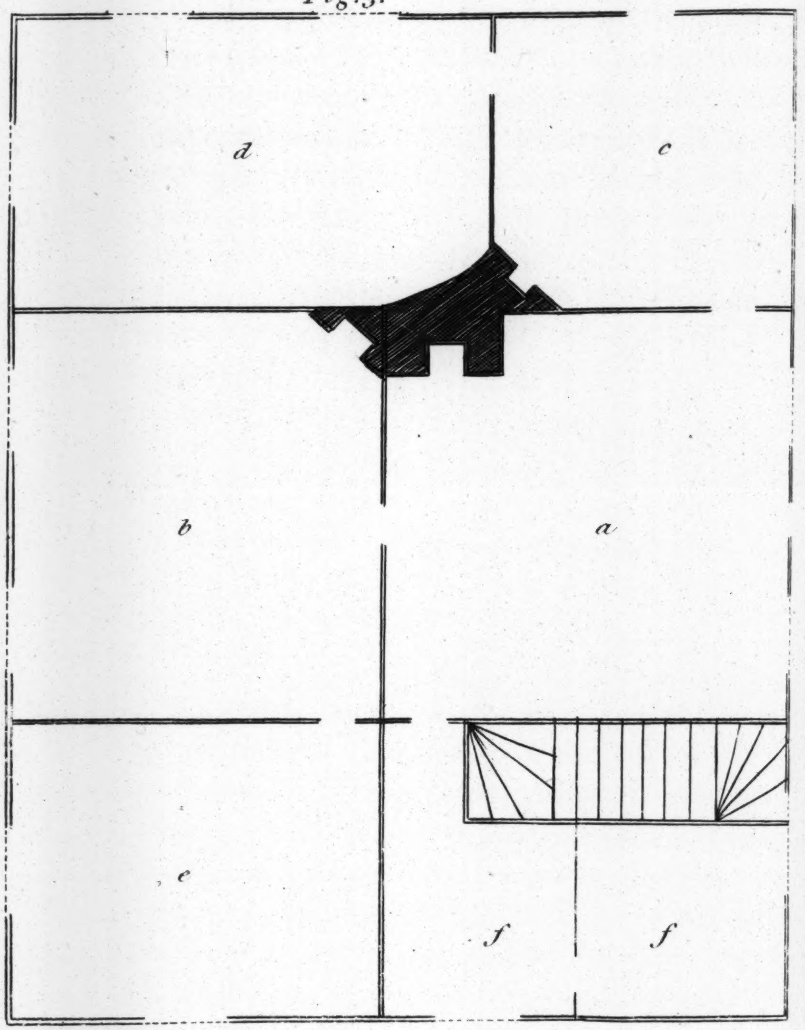


Fig. 3.



with the œconomical conduct of a farm. I ſhall venture to recommend the following as cheap and convenient. Plate II. Fig. 1. repreſents a farm houſe for the ſmalleſt of farms; *viz.* from 20 to 40 or 50 acres of land: but if ſuch farms are plentiful in the country, ſo that farmers can chuſe, they might require rather more room to a farm of 50 acres.

a. Is the common keeping room and kitchen.
b. The dairy.
c. The brewhouſe and ſcalding-houſe to the dairy.
e. The cellar.
f. Pantries.

Upſtairs, four bed-chambers.

Upon this deſign let me remark, that the objections on account of ſmallneſs are of no foundation. Let any perſon converſant in country life take notice of the way of living in farms of this ſize, and in many even larger farms. It will be found that the farmer and his family, however large his houſe may be, uſe no more than the rooms here ſpecified. In numbers of three times this ſize, no more than one fire is ever kept, which is the kitchen one for all the family; this is (a). All the buſineſs of brewing, baking, waſhing, ſcalding the dairy things, &c. is executed in one ſmall room; this is (c), which opens into both kitchen and dairy for convenience. The dairy (b), is a room to itſelf. This is the caſe with moſt farm-houſes in larger ones that have a ſpare parlour; it is not uſed thrice a year—and in many which I have ſeen, is not even furniſhed.

It muſt be obvious, from a very ſlight glance at the above ſketch, that the expence of building ſuch a houſe is trifling; how different from the coſtly edifices we ſee erected on ſmall farms, when conducted by ſtewards who have been uſed to old practices, or by builders who make a job of every thing that paſſes through their hands——by family carpenters, who are left to bring in their bill!——

A good farmer will always view the buildings around the farm-yard with more attention than the dwelling houſe: and he ought there to have no reaſonable expence ſpared, becauſe he can afford to pay rent for it; which is not the caſe with an expenſive houſe. Another circumſtance to be conſidered by thoſe who object to ſuch a farm-houſe on account of being ſo ſmall, is the general excellency of every thing about the farm : a man who views one, all the fields of which are in admirable order — the fences ſtrong and without a ſingle gap——the buildings of utility for cattle, &c. perfect—the farmer, who takes ſuch a ſurvey, would think twice before he rejected the farm, becauſe the houſe was rather too ſmall.

The next ſized houſe I ſhall venture to ſketch is the following : Plate II. Fig. 2.

a. The kitchen.
b. The parlour.
c. Brewhouſe, ſcalding-houſe, bake-houſe, &c.
d. Dairy.
e. e. Pantry and cellar.
f. Cloſet.
Six bed-chambers.

This houſe is ſomething larger than the laſt ; but yet the expence of erecting continues very ſmall ; I ſhould not build a larger houſe than this to farms from 80 to 150 acres of land ; and many farmers upon a much larger ſpace of ground would prefer ſuch a houſe to any that was more ſpacious. Moſt of them prefer the mere uſe and conveniencies of a houſe to any other circumſtance; numbers that I know, would give up a parlour or any ſpare room rather than pay the window duty for them.

The next ſized houſe I ſhall inſert, is one for any large farm that abſolutely requires a more ſpacious dwelling than the preceding. Plate II. Fig. 3.

a. The kitchen.
b. The parlour.
c. The brewhouſe.
d. The dairy.
e. A ſpare room for any purpoſe moſt wanted.
f. f. Pantries, *&c.*
Eight bed-chambers.

Larger farm houſes than this, I can in no reſpect ſee the uſe, or neceſſity of: conſequently there is no uſe in ſketching more. Theſe few I have ventured to give an idea, are not thoſe gimcrackery affairs which have been erected in ſeveral parts of the kingdom at a great expence; but to ſhow in what manner houſes may be raiſed that are perfectly uſeful, and at the ſame time *cheap.*

It ſhould in general be obſerved in building theſe houſes, to make the kitchen roomy on account of ſo many farmers uſing no other room.—The brewhouſe which ſerves alſo for waſhhouſe, bakehouſe, ſhould open into the dairy on account of its then ſerving for a ſcalding-houſe to the dairy; with this proviſo, that the partition between them be ſubſtantial enough to prevent all paſſage of ſteam: if this connection be not obſerved, another room for ſcalding muſt be built, which is an expence that ſhould be avoided.—Corner chimneys in manſion-houſes are what an architect muſt reject; but the caſe is very different with a farm-houſe.

Theſe buildings are all to be erected at a very trifling expence, compared with what we ſee every day thrown away to no uſeful purpoſe.

I come next to matters of more importance than the farm houſe, *viz.* farming offices. Theſe ſhould be attended too particularly.—They are ſo very imperfect in moſt old farms, and at the end of a leaſe generally ſo much out of repair, that in moſt caſes it is adviſable, when ſpirited improvements are in hand, to pull down and rebuild them; when the houſe is new built and moved—or new arrangement of

the

the fields take place, theſe buildings muſt of courſe be new. But as the manner and form of building moſt of them are every where pretty much the ſame, I ſhall not dwell on the particulars here, but ſketch the *ſituations*:—that is, the incloſure formed by them: this reſpects the barn, ſtable, and cow-houſe. But the hogſties are ſcarcely ever contrived in the manner they ought; for which reaſon, I ſhall offer the deſign of ſome, that are particularly adapted to certain farms.

Be the farm ever ſo ſmall, if it is part arable, and part graſs, the following buildings muſt be neceſſary:

A barn.
A ſtable.
A cow-houſe.
A hogſtie.
A cart lodge.

We find theſe, and generally ſomething more to the leaſt of farms, theſe upon a ſmall ſcale ſhould be placed in the following manner. Plate III. Fig. 1.

a. The yard incloſed by pales where there are no buildings.
b. The barn.
c. The cow-houſe.

Pl. III. pa. 38.

Fig. 1.

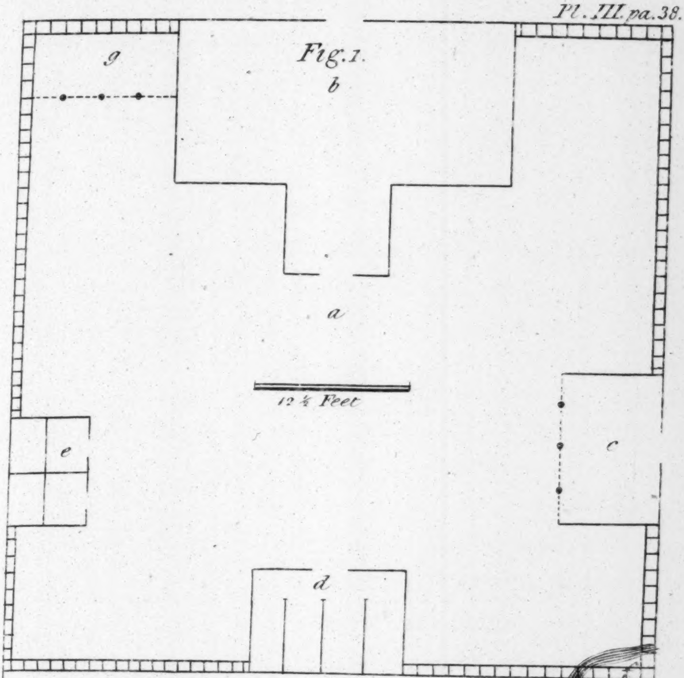
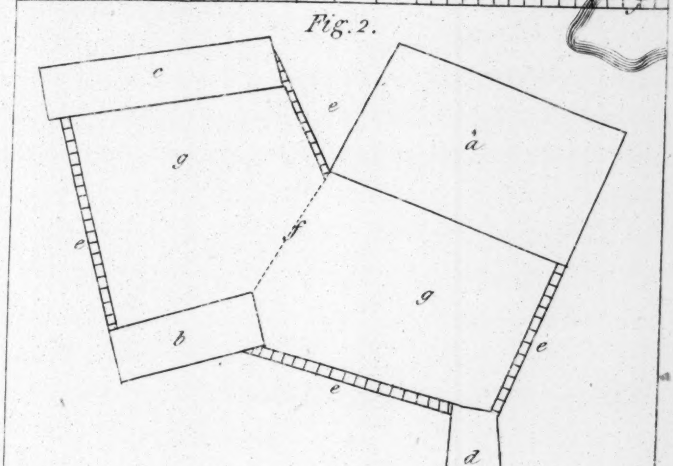


Fig. 2.



d. The ſtable.
e. The hogſties.
f. A pond; a mouth of it paled into the yard.
g. The cart lodge.

The cow-houſe is only a ſhed open in front, ſupported by poſts, but with rails from poſt to poſt to open and ſhut like a gate: to ſerve when unoccupied by cows ſhut up—as an open ſhed for the looſe cattle in the yard to ſhelter under.

I have taken no notice of the dwelling houſe, becauſe many cauſes may render it neceſſary to have the yard and the houſe ſeparate: but whenever it can be managed, I would always have the farmer's kitchen at leaſt, form a part of the incloſure, inſtead of ſo much paling for the great convenience of having the barn, the ſtable, and all his cattle conſtantly under the eye of ſome of his family.

To have joined the buildings in one line would have ſaved ſomething in *ends*; but the yard would be much more incomplete in many reſpects.

I have ſuppoſed the ſtable for four horſes; but three or two may be eaſily proportioned.

Many ſmall farms I have viewed attentively, and remember very few with leſs building—in general they have more; but in ſo disjointed a ſituation, that with more paling around the houſes few have a good yard, notwithſtanding the neceſſity of one to good huſbandry in every part of the kingdom. A farm being ſmall, ſhould never influence a landlord to neglect ſo important a matter, as convenient buildings well ſituated and forming a yard for keeping together all the cattle in winter. The condition of the farm will depend much on this attention; for if the tenant for want of proper conveniencies lets his cattle ſtroll about the farm, the land, if it is wet or moiſt, ſuffers; and a great injury is ſuſtained in the loſs of manure.

I need not particularize the exact dimenſions of each of the buildings, as that would render a plan requiſite to every variation in the farm: they ſhould be proportioned to the cattle that will probably be kept on the farm:—the number of horſes regulates the ſtable——that of cows, the cow-houſe and hogſties;——the arable land, the barn; the implements, the cart lodge, which ſhould indubitably be large enough

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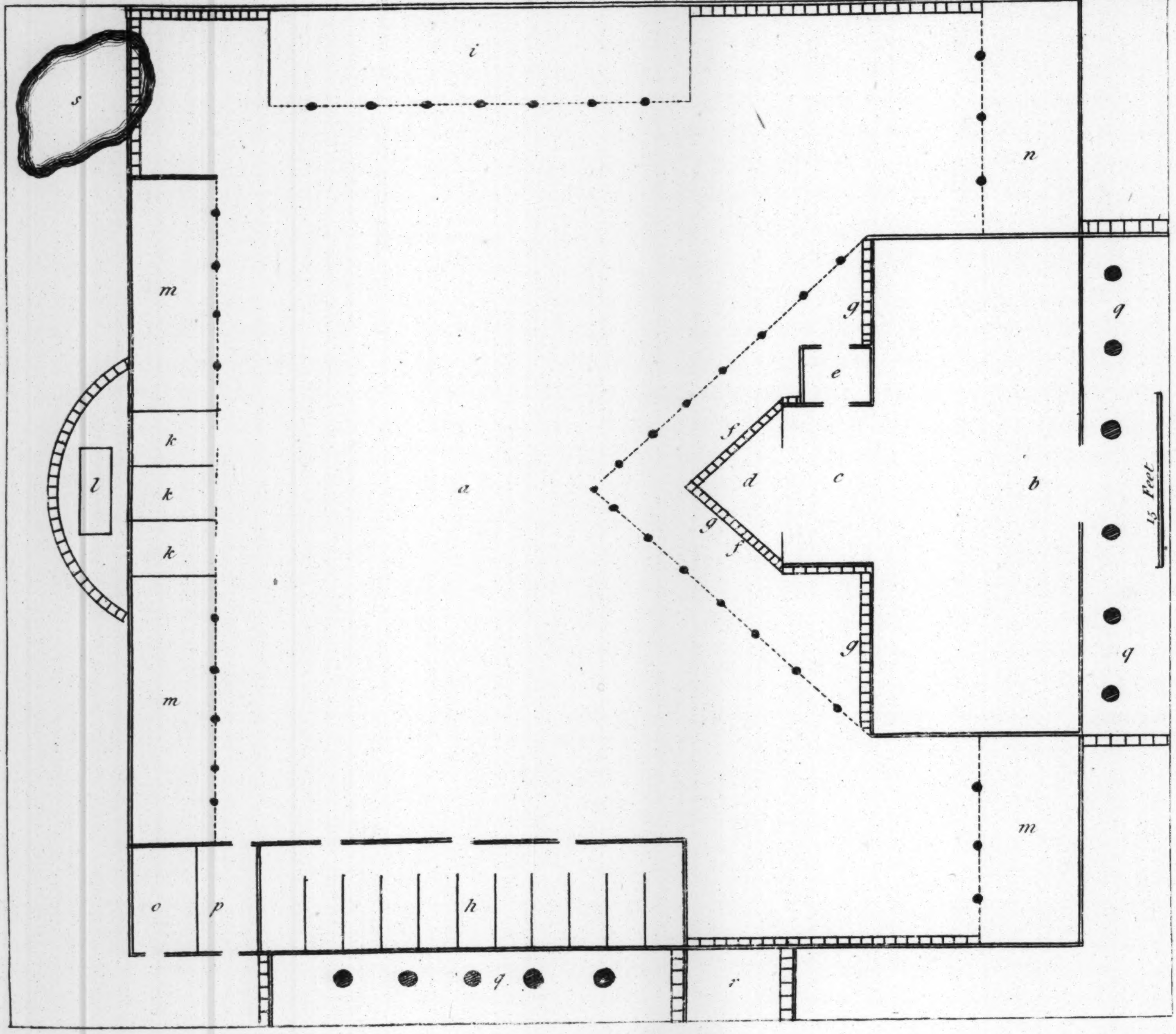
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enough to cover all ſorts of carts, ploughs, harrows, rollers, *&c.* And all theſe circumſtances, with the number of young cattle, decide the proper ſize of the yard. A ſquare of 50 feet is large enough for from 10 to 16 head of cattle, according to circumſtances.

The next yard I ſhall offer is the following: Plate IV. which will be proper for various farms of the middling ſize.

a. The yard.
b. The barn.
c. The porch to ditto.
d. A projecting ſtraw room.
e. The chaff room with a ſliding door to throw the chaff through.
f. A ſhed open to the yard.
g. Racks for the cattle to eat the ſtraw out of, projecting ſlightly at top from the ſide of the barn and ſtraw room, for the threſhers to throw the ſtraw into, and the cattle to eat it while ſtanding dry under the ſhed, f.
h. The ſtable.
i. The cow-ſhed.
k. Hogſties.
l. A covered ciſtern to keep the waſh in; a pipe to be laid to it from the

dairy, ſcalding-houſe, *&c.* the boy raiſes waſh directly out of this ciſtern, and pours it through ſpouts into the troughs within the ſties.

m. Open ſheds for the cattle to retire under, with mangers around to give turneps, *&c.*

n. A cart lodge.

o. An aſh-houſe.

p. Poultry-houſe.

q. Stack-yard.

r. A ſheep pen.

ſ. A pond; a mouth of it paled into the yard.

This yard and buildings, with ſmall variation in the ſize of the latter, would do for many ſized farms: all the conveniencies are excellent of their kind, and ſo placed as to render the farmers buſineſs extremely regular and ſimple; the open ſheds are admirably convenient for lean or young cattle; and alſo for ſtall-feeding beaſts on any winter food. They may, like the reſt of the buildings, be contracted or enlarged according to the ſize of the farm.

I ſhall not trouble you with yards on a larger ſcale: but you muſt allow me to add ſome general remarks on yards and buildings,

ings, which in ſuch undertakings as thoſe, I am conſidering at preſent may have their uſe.

All parts of the buildings ſhould, on many accounts, be raiſed of the ſtrongeſt materials which are moſt common in the country. In many parts of the kingdom ſtone and ſlate are plentiful: in ſuch they ſhould certainly be uſed. But where brick and tile are dear, landlords are too apt to build with plaiſter and cover with thatch: which are in the end much the deareſt materials that can be uſed. I do not recommend raiſing all the buildings of brick where they are dear.——I think boarded ones are in ſuch countries highly ſufficient, upon good brick foundations; they are ſtrong and laſting:——but to cover with tile is indiſpenſable.——Thatch muſt on no account be uſed. In all other reſpects every thing ſhould be well and ſubſtantially executed. Walls are far preferable to pales, even in countries where brick is dear; pales are for ever falling in pieces—but all theſe points muſt depend in a good meaſure on the variation of circumſtances.

The plan in general of raiſing buildings in the moſt convenient manner, and ſo as to incloſe a proper yard for winter keeping the cattle, is abſolutely neceſſary to all who would work ſuch improvements as thoſe I am at preſent recommending. I will venture to aſſert, that it is impoſſible (unleſs in very peculiar ſituations) to farm well without a good farm-yard, and proper buildings: in farms where ſuch are not to be found, the graſs fields are poached all winter long, and the quantity of manure raiſed trifling; manure is the ſoul of good huſbandry, and that cannot be made in great quantities without a proper incloſure to feed the hay, ſtraw, turnips; and to litter the ſtubble; nor can a farmer make the very deſirable uſe of an opportunity to gain, or purchaſe fern, refuſe ſtraw, *&c.* in order to convert into manure, *unleſs* he has ſuch a farm-yard to litter with them. But without ſuppoſing ſo good a ſyſtem of management, ſtill the farmer will not be able to raiſe any dung from his own ſtraw, hay, ſtubble, turnips, *&c.* without the proper conveniencies. View the management of two farmers, one good and the other bad in this reſpect: the firſt procures by every means plenty of litter for his ſtalls of all ſorts, and his yard for looſe cattle;

he chops his ſtubble; ſaves all refuſe ſtraw; fodders all his crop in his yard; brings home all his turnips, that are not wanting to his ſheep; and if his litter falls ſhort, buys ſtubble, fern or refuſe ſtraw of his neighbours: at the concluſion of the winter he has a noble dunghill in his yard, that will go near to manure a fourth of his farm, eſpecially if he laid a proper foundation of chalk, marl, or turf, to fodder upon. On the contrary, the ſlovenly huſbandman keeps his cattle ranging about the fields all winter: the hay of each ſtacked in it; all his paſtures are poached; and the manuring they gain by the means too trifling to recompenſe the evil; for ſuch a thin ſcattering is worth but little. His ſtubbles he ploughs into the ground; and for want of a yard, either waſtes or ſells his ſtraw, and in order to ſave trouble probably, feeds off his turnips whatever be the ſoil——though not one acre in five hundred be dry enough in winter to feed with cattle: at the end of the winter, he has ſome dung, as much as he cannot avoid having, but what proportion does it bear to the others?

In a word, the management of the farm-yard manure, is a point of ſo great importance, that ſuch an improving landlord as I am at preſent ſuppoſing, cannot give too much attention to the raiſing his tenants all thoſe conveniencies which will induce him (in countries where the practice is common) to make the moſt that is poſſible. And in countries where the huſbandry is various, to force the tenant to new methods. This part of the plan muſt be executed, and I know no method that promiſes greater ſucceſs in it, than binding them in their leaſes to ſtack all the hay of the farm at home, and alſo to chop all their winter corn ſtubbles, and bring them to the yard.

The plan of conduct which I now venture to recommend, I ſhould obſerve, is very little more expenſive than that which is in moſt places common. The preſent enquiry does not turn on the expediency of building a barn, a cow-houſe, a ſtable, or a hogſtie——but merely on the ſituation of them: in all caſes they muſt be built; and it will coſt as little to raiſe them in one ſpot as in another.——In caſe they are found already, and ſo good, as to require only ſome reparations, and at the ſame time in a ſtraggling ſituation—— then let a yard be made as adjoining as poſſible (always againſt the barn) with walls or pales, *&c.* Plate III. Fig. 2. Suppoſe (a) the barn, (b) the ſtable, (c) the cow-houſe, (d) the hogſtie; the buſineſs then is to add the fences (e), to incloſe a yard (g), and if it is a large farm, where ſeveral ſorts of cattle are kept, it may be divided into two yards by another fence (f). In caſe there are no ſheds, a new one might be built inſtead of one of the fences (e). By acting in this manner, the improvement of a yard may in all caſes be gained.

All theſe buildings and walls or pales— whether new raiſed or repaired; ſhould by all means be contracted for, with reſpective carpenters, maſons, *&c.* and all finiſhed in one ſummer: if the workmen employed are not ſo conſiderable as to be able to take the whole at once, they ſhould take each a part: a barn, for inſtance, to one ſet;——ſtables to another;——cow-houſe, hogſties, and paling or walls to a third: every thing to be taken by contract, materials, carriage, labour, *&c. &c.* This point ſhould always be adhered to, for it is a matter of great importance to the whole improvement to finiſh every thing in one year; better pay extraordinary prices, than not be certain of this grand requiſite. It is abſolutely pernicious in the execution of ſuch a plan, to be perſuaded by a ſet of knaviſh workmen to build by weekly pay—by the ſquare—or any meaſure in which the time of finiſhing is not as explicit as the deſcription of the building. Many workmen of this ſort, eager for buſineſs, will promiſe any thing—but as ſoon as they have begun the work, ſo as they think themſelves ſure of it, will make it a running job for years: an improver cannot proceed on a more unprofitable plan: for with ſuch complete conveniencies as thoſe I have deſcribed, it is a matter of conſequence, not to lett the farm till all is finiſhed; that the new tenant may be occularly convinced of the uncommon excellence and profitableneſs of the buildings and yard.

I mentioned contracting for the carriage, as well as the materials, for the ſame reaſon; if the landlord undertakes this work, he muſt either be at a great expence in teams with much trouble—or be liable to delay, for which he has none to blame but himſelf: beſides, there is no difficulty in the point; for every carpenter and maſon in *Britain* is well enough acquainted with the rates at which the neighbouring farmers will cart materials.

Reſpecting the expences of the preceding, or other buildings, it is impoſſible to offer any calculations, without their being ſo voluminous, in including the variations of the prices of ſtone, bricks, lime, timber, *&c.* Theſe variations are ſo great, that there would be no utility in ſtating ſlight particulars: nor is it eſſential, as buildings in all farms muſt be either raiſed or repaired, whatever may be the expence—— and a landlord may reſt aſſured, that the executing ſuch works well, and upon a convenient ſyſtem, will always enable the tenant to pay good intereſt for the money in rent.

LETTER VII.

HAVING touched upon the different circumſtances that ſhould principally be attended to in the arrangement of the fields, and in the buildings requiſite for the farms, I ſhall in the next place venture to offer a few hints on the important buſineſs of bringing the fences into repair: according to the cuſtoms moſt common in *England*, every reparation of fences, except gates, poſts, rails, bridges, *&c.* are done by the tenant; but we know ſo well how they in general do them, through poverty, that to an improver of any ſpirit, it is abſolutely neceſſary to take the buſineſs out of their hands at the expiration of a leaſe. The gentleman in this, as in moſt other inſtances, does nothing but what an excellent tenant, with a good deal of money in his pocket, and a long leaſe, would do for himſelf: and this criterion of his works, will, in moſt caſes, ſhew the certainty of his profit; for if it is poſſible (and of that there cannot be a doubt) that it can anſwer to a tenant, to perform any thing of this ſort upon another man's land; how much more muſt it anſwer to a gentleman to do it upon his own land?

The ſyſtem of common tenants relative to fences, is to do a certain portion every year, in a common manner, at as ſmall an expence as poſſible: for want of money they cannot attempt the undoubtedly profitable conduct of finiſhing all at once; by ſuch a plan, they, in one winter's work, ſo completely fence their farm, as to be confident of the ſecurity of ever finding all ſorts of cattle wherever they are turned;—their corn, nor turnips, nor hay, ever receive any damage from cattle breaking into them: if their land is naturally wet or ſpringy, it is very much drained by the ditches; and alſo the firſt ſtep to a perfect drainage, executed by making main drains of ſuch ditches, and laying the ſmaller covered ones into them: of the benefit of all theſe circumſtances the commoneſt farmer is well convinced—all would act thus, were they able:——nor can there be a moment's doubt of the occupier's ability to pay good intereſt for all ſums of money ſo well expended.

Reſpecting this buſineſs of bringing the fences of a farm into excellent order, the landlord muſt view them with attention: in thoſe numerous parts of *England* that incloſe with dry ſtone walls, the buſineſs of reparation has nothing of trouble in it; the materials are on the ſpot, and the workmanſhip *per* 7 yards, not only cheap but every where fixed. Where live hedges and ditches form the fence, ſomething more of difficulty will be met with.——The ditches in ſome countries are ſo trifling, that they neither drain the land, nor ſtrengthen the fence: ſuch great defects in huſbandry ſhould always be remedied when a gentleman undertakes an improvement. By all means let him make large and deep ditches: they are requiſite in all ſoils, for a hedge without them, however well made, will prove but an inſufficient fence. The two ſizes particularly to be recommended, are 5 feet wide by 4 deep, and 1 foot wide at bottom, and 4 by 3 and 1 wide at bottom. In very flat wet countries here and there, a larger will be requiſite, in order to carry the water off; but in general theſe will be ſufficient.

Hedging varies much in different countries, but the two grand diſtinctions are, cutting all the wood up, and making a hedge totally of dead wood: and the plaſhing method of cutting only part up, leaving as many live hedge ſtakes as poſſible, and much ſtuff to be plaſhed among the dead buſhes. I ſhall venture from experience, particularly to recommend the latter method: I know from long practice, that the firſt method is a pernicious one; and I alſo know from practice, that the latter is an excellent method.

When the hedges conſiſt all of dead wood, their total deſtruction is inevitable, as ſoon as the ſtakes rot in the ground, which in common is in one year and always in two: a high wind, or a deep ſnow then bears down whole miles of theſe hedges into the ditches——ſo as to admit an army to paſs them without trouble; and the deſtruction of the dead hedge opens an immediate attack upon the young live one, before it is nearly arrived at an age to defend itſelf—the conſequence of which is, perpetual gaps: whatever ſums a landlord lays out in this manner, are of no avail, his fences will never be in repair.

But on the contrary, in the plaſhing method, the hedges are in fact live poſts and rails; for many of the hedge ſtakes and moſt of the wood being alive, and continuing in that form to grow, the whole is kept impenetrable; the tops of the live hedge ſtakes ſprout out various ways, and conſequently keep down the edders, which would otherwiſe be liable to be raiſed from the ſtakes: theſe effects are ſo great and ſtriking, that it is extremely common in *Herefordſhire*, (where the plaſhing method is practiſed in the utmoſt perfection) to ſee the old dead hedge ſtanding complete and ſtrong at the bottom, and in the midſt of a live one a dozen years old: an object never beheld in thoſe countries, that cut up all the hedge wood.

But excellent as the plaſhing method is, yet I conceive that, nor no other hedge, to be a fence ſufficient without a good ditch, of at leaſt 4 by 3, which prevents all attempts (eſpecially if the ditch earth is all laid upon the bank, and the hedge at the top of it) of jumping over it;——and ſaves it many attacks which a mere hedge receives. United, they form an impenetrable fence, in which any farmer may confide with the utmoſt ſecurity.

But a further improvement remains to ſpeak of: it is the adding ſome poſts and rails and pales at the ends of gates——alſo where two or more ditches join—and likewiſe where a ditch changes its courſe: however well the fence may in general be made, yet theſe places will be particularly weak, and more open to being paſſed by cattle than any others. Swine are the grand enemies of fences, and the man who does not fence againſt hogs, I hold to poſſeſs no fences at all: a hog will ſet his head near a gate poſt, his noſe to the ground, and force his way at once through, as the ditch on the other ſide is there no defence: he will likewiſe go into a ditch in one field, and running along the bottom of it when he comes to a place where it changes its courſe, puſh through the buſhes which workmen uſually ſtuff in, and riſe in the other field: and the ſame in the ſeveral places where ſeveral ditches join; the very beſt of fences are open to theſe objections, unleſs theſe weak places are ſecured with paling. But when ſuch places are ſtrongly paled, no ſwine can force through. I lay a particular ſtreſs on fencing againſt hogs, becauſe it is the only criterion of a good fence: if you keep out hogs you are certain of ſecurity againſt all other cattle; and if you do not fence againſt them—they preſently make ſuch gaps, that ſheep ſoon follow them, and then a horſe, a cow, and even an elephant might paſs.

This is the beſt of fencing; and I would by all means recommend to an improver, when he begins his grand work, to determine to bring the fences into this perfect order: his ditches to be 4 or 5 feet wide according to the ſoil. The banks made high; and on them a well plaſhed hedge. The gates to be ſtrongly made and painted, which is a great preſervation. Brick or ſtone arches to be turned at all water courſes through gateways. And the ends of gates, and the openings of ditches, all ſecured with paling. Theſe circumſtances ſpiritedly attended to, and executed, will add prodigiouſly to the value of a farm; a great expence is taken off the tenant's hands——and his advantages from occupying ſo thoroughly fenced a farm of the moſt important kind.

As to the means of executing this ſalutary meaſure; the improver muſt begin the work with great vigour, becauſe it is abſolutely neceſſary, that all of it be finiſhed in the winter. The hedging and ditching muſt be put out by the perch to labourers; in the choice of whom, one circumſtance is material, that ſome of them underſtand the plaſhing a hedge; if none ſuch are to be found in the neighbourhood, I would by all means recommend to the gentleman to ſend to *Hertfordſhire*, &c. for a few to mix with the reſt, that they might do the plaſhing part, and at the ſame time teach the reſt of them that method to practiſe in future. The difficulty of ſuch a matter would be trifling: were I to undertake the improvement of an eſtate, I ſhould certainly determine to overcome any ſuch trifling obſtacles. The ditch ſhould be worked by a frame; a method which keeps the men to their bargain, and ſaves abundance of trouble.

In repairing the fences of a whole farm at once, ſome hedges would certainly be met with that would not yield a ſufficiency buſhes, ſtakes and edders for the new hedge; in ſuch a caſe, if the requiſite quantity cannot be procured elſewhere on the premiſes, they muſt be purchaſed of the occupiers of the neareſt woods, and care taken to have them ready for the men; that no time be loſt.——And as faſt as the labourers proceeded, the carpenters ſhould be ready with their poſts, rails, pales, *&c.* to fix at the gates ends, and the openings of the ditches: all which muſt be placed while the work is doing—and before the hedge is made.

Fencing in this perfect manner, is not, upon the whole, ſo expenſive a buſineſs as may at firſt be imagined. Any quantity of hedging and ditching may be done at 1 *s.* 4 *d.* to 1 *s.* 6 *d.* *per* perch the hedge of the perfect kind, I have deſcribed; and the ditch worked by a frame 4 feet at top, 1 at bottom, and 3 feet deep in the middle. The paling the gate ends and openings in ditches comes to from 2 *s.* and 2 *s.* 6 *d.* to 4 *s.* 6 *d.* and 5 *s.* *per* place. But the whole would be cheaper done in many parts.

Many gentlemen are extremely fond of white thorn hedges, regularly clipt. They have a neat appearance, but not one in forty of them is to a farmer worth a groat: as they grow old, they univerſally grow ragged at bottom——at leaſt to ſuch a degree, as to render them far ſhort of fencing againſt a hog——and I have before remarked, that if you do not keep out your herd of ſwine, you will not your flock of ſheep; one animal makes way for another, till at laſt all go through. Theſe objections are very ſtrong againſt clipt hedges of 5 or 6 rows of quick: how much more ſo then, againſt thoſe of only one or two rows. Another thing to be conſidered is, the mending a gap—to be conſiſtent, the only method of doing this, is to pale in the place, while the damaged quick gets up again and thickens: if the gap is ſtopt with dead buſhes, that part of the hedge will never recover, and the place always remain weak. Nor will one farmer in ten thouſand ever be perſuaded to ſacrifice ſo much to appearance as to be at the annual expence of 1½*d.* a perch in clipping. For theſe and many other reaſons, I cannot but adviſe any improver to give up ſuch a plan: a white thorn hedge grown to a large bulk and plaſhed, is ſuperior to all the hedges upon earth;—but the preſent enquiry is the improvement of old fences.

In caſe that any new ones are requiſite, which may in all probability be the caſe, either from a new arrangement of the fields—dividing large ones—or making new fences where old ones are ſo bad as not to admit of thorough reparation:——in any of theſe caſes, it much behoves the improver to conſider well the work, for it is an important one.

Reſpecting the fence alone, white thorn unmixed with any other wood makes at laſt the beſt fence; but relative to a farm, there is another circumſtance to be conſidered; which is, the tenant's firing. In moſt countries, the farm either ſupports him in this neceſſary, or the landlord pays an allowance of coals. Thorn hedges yield no firing——very great ones afford ſome buſhes which may be either uſed or ſold: ſo that if all or moſt of the hedges be thorn, the landlord muſt allow for firing——or plant a field by way of a wood: in any caſe, there is a loſs ſuſtained. Let it not here be imagined that I am ſpeaking againſt white thorn fences;——I am only conſidering every ſide of the queſtion, that the ſubject may be fully diſcuſſed and underſtood. The mixed hedges—thoſe of thorns, ſallow, aſh, hazel, beech, *&c.* yield in general, excluſive of the hedge, firing enough to ſupport the farmer's family; which is undoubtedly an object of greater importance, than has been thought of by the many writers who argue ſo warmly in favour of white thorn alone. But the point muſt, after all, depend on collateral circumſtances, to be judged of by the improver. In caſe it is determined to make the new hedges all of white thorn; the following is the proper method of making them.

All the earth which riſes out of the ditch to be formed into the bank, and the rows of quick to be planted on the top of it. Behind the bank, at the diſtance of 18 inches or 2 feet from the quick, let the dead hedge be made; all the ſtakes to be ſallow; moſt of them will grow, which is the ſecurity of the dead hedge ſtanding a proper time——if dead ſtakes are uſed, it will be a monthly rent charge. As the quick muſt be cut at 3 years growth, and after that be defended by a hedge till cut a ſecond time for plaſhing, which muſt not be in leſs than eight or nine years, the dead hedge muſt be kept good for eleven or twelve years. With dead hedge ſtakes it would in that time require making at leaſt ſix times, and be an enormous expence; but by the uſe of ſallows, the firſt hedge will ſtand good 4 years, perhaps 5: then let it be pulled up, the old hedge ſtakes plaſhed down among the new buſhes, and new ſallow ſtakes driven in: but the plaſhes muſt all be laid *from* the quick, that the latter may be neither ſhaded nor damaged. This ſecond hedge will remain the reſt of the term; then the quick I ſuppoſe ready for plaſhing: let the ditch be cleanſed, the bank repaired, and all the ſallows of the dead hedge grubbed up and removed; the new hedge is to be totally (except the edders) made out of the live quick: let enough of the ſtems be cut off, about 2 feet ſix inches from the ground, and trimmed up for hedge ſtakes, and let all the reſt of it be plaſhed down between thoſe ſtakes, and the edders twiſted in as uſual. From that time the fence is impenetrable. Thus you obſerve, I make no other uſe of ſallows than to render two hedges ſufficient, inſtead of ſix.

As to farms fenced with dead hedges alone——no live wood; or with pales; ——or other pecularities——they muſt be ranked in the number of barbariſms, and totally eradicated.

LETTER VIII.

THE next buſineſs in the improvement on which I ſhall trouble you, is the proportioning the graſs and arable land in the farms. This is a point of very great importance, and one which will repay all your expence and attention in the moſt ample manner.

I ſhould remark, that alterations or improvements of this nature in many caſes, require the landlord's taking the farm into his own hands for a year——or a year and a half; but when tenants will execute orders exactly, for which they are paid, this precaution will not be neceſſary.

It is impoſſible to give a general rule for fixing theſe proportions: the circumſtances of the country, with the rent that is gained for graſs land, muſt be the landlord's guide in this point. However, in nine-tenths of *Britain*, the graſs land of every farm is rated much higher than the arable, and pays the landlord much better. In very many places, farms that are entirely of graſs exceed all others. The difference of the rent is an object of the firſt importance. One general maxim may, however, be recommended, that it is much better to have too much graſs, than too much arable: the one may at any time be remedied, and with profit, but that is not the caſe with the other.

When it is profitable to increaſe the graſs land of a farm—the landlord's firſt attentention is to begin the tillage of ſuch land: and whether he executes the reſpective operations himſelf, or pays the old tenant for them, makes no difference—in either caſe, I would humbly recommend the following plan:

Let the ſtubble of the preceding crop be turned in very ſoon after harveſt; and in *October* ploughed again on to the ſmall 3 feet ridge to lie the winter, and the whole well water-thoroughed. In the ſpring, as ſoon as the ſoil will admit ploughing, be ready for the work, and gain by ploughing and harrowing a very fine tilth by the firſt week in *May* if poſſible; when this fine tilth is gained, leave the land for a fortnight or 3 weeks, that all ſeeds may ſprout: you will probably have a full crop of them; then turn them in by a freſh earth, and proceed with your tillage through the months of *June* and *July*. I ſhall not decide between the advocates for a ſpring or an autumnal ſowing of graſs ſeeds——but in the preſent caſe, the autumnal one is much to be preferred, not becauſe it is beſt, but becauſe the work will be done within the year of improvement. The land muſt be very fine and *perfectly level* by the firſt week in *Auguſt*, then let the graſs ſeeds be ſown, and the land harrowed and rolled.

As to the ſeeds, you cannot have your choice, for thoſe which have been ſeparated by hand are undoubtedly to be preferred, but they are not yet to be had in ſufficient quantities. By all means reject the chance medley of hay-lofts——and I would alſo adviſe you to reject ray-graſs. White clover is cheap and excellent—— burnet is to be recommended for a mixture——alſo the narrow-leaved plantaine, called in the north, rib graſs. I ſhould think 16*lb.* of white clover, 10*lb.* of burnet, and 10*lb.* of rib graſs; a good portion for an acre of land, and the price would not exceed 15*s.* 6*d.* for all. If the gentleman is fond of ray graſs from obſerving it to make a fine lawn *kept always cloſe fed:* there will be no great objection to adding a peck *per* acre of it; but 2 or 3 buſhels of *clean* hay ſeeds would be much better.

In caſe the ſoil is a dry chalky ſoil—— a light limeſtone loam——ſandy——or dry gravelly land, it will be adviſable to ſubſtitute ſainfoine inſtead of theſe graſs ſeeds. The improvement will be very great and probably render the land of ſix times its former value.

By proceeding upon this plan, you will be able to lay down any part or all of your farm to graſs in one year's time—the ſame year that is alſo occupied by all the undertakings; by which means you will be but one year out of your money——diſengage yourſelf at once from the improvement of each tract, and in the worſt caſe, loſe but a year's rent of the land.

The importance of thus bringing a juſt proportion of graſs and arable land——or of converting all the land to graſs, is clearly very great; very few of my readers but can recollect vaſt tracts of land which yield but a poor produce while arable, that would pay a great rent in graſs. All cold wet ſoils do very well in graſs, but very badly in arable: prodigious tracts of ſuch land, that will bring but from 7 *s.* to 10 *s.* an acre under the plough, would readily let for 20 *s.* in graſs. An improver will in no inſtance find ſuch great and certain profit as by this article of laying much arable land down to graſs.

Half and half on arable farms is not a bad proportion.——Two-thirds graſs, and one-third arable is a better—and in many ſoils three-fourths graſs, is highly adviſeable.——There are ſome objections to total graſs farms in certain caſes; if a part of the land is dry enough for turnips, the tenant by all means ſhould be able to have a field of them every year; two fields arable would for that purpoſe be ſufficient, one every year in turnips, and the other in corn. In caſe the land is clay, the ſame might be done with cabbages, in caſe the tenant would uſe them; one field would be ſufficient. They might be planted on the ſame land every year, and the crops would each year be better than the preceding.

If any general rule, relative to the proportion of graſs and arable land was to be recommended, it ſhould be that of cattle maintained: to have arable enough, to winter-keep all the cattle his graſs will maintain in ſummer—but this rule ſhould be excluſive of corn crops. A tenant would on this ſubject tell his landlord, that he could not maintain his cattle without turnips: the latter aſks, what quantity of turnips he wants? He replies, 10 acres. "Very well," replies the landlord, "you "ſhall have 10 acres of arable for turnips."——"But that will not do, Sir," ſays the tenant: "I can't ſow turnips every "year on the ſame land, 10 acres of turnips require 40 acres arable, for "fourths of turnips, barley, clover and "wheat." This is an argument which will be uſed to many a landlord; but let him be determined, if the ſoil is more profitable for graſs, to liſten to no ſuch arguments; and if the tenant will not be contented with ſowing turnips every year on the ſame land, to indulge him no further than allowing double the quantity of turnip land, that he may have one change from turnips to corn. Tenants are apt to

be

be eager for arable land, not only on account of their idea of a ſuperiority of profit from it, but alſo from the notion of hiring it much cheaper——but this is one reaſon among many for the landlords acting on the direct contrary plan.

Let every one remember, that his eſtate while under graſs is conſtantly improving; if he changes his plan at any time, and ploughs up his graſs, he is ſure of great and extraordinary profit on that account —this ſhould convince him that if he does commit an error, it had much better be on the graſs ſide of the queſtion.

In laying land of the proper ſort to ſainfoine, the profit is likewiſe exceedingly great, and more particularly ſo in countries that have not adopted the culture in general: there are many very extenſive ones in many parts of the kingdom that know nothing of this excellent graſs. The proper ſoils for it ſeldom let for more than 5 *s.* or 6 *s.* an acre; and often for not more than 1 *s.* or 1 *s.* 6 *d.* Theſe lands are of very difficult improvement—no management can make them of equal value with the ſowing ſainfoine, which is the cheapeſt method in the world of executing the buſineſs.

ſineſs. And the tenants may not be acquainted with the manner of improving ſuch ſoils, yet landlords from more extenſive knowledge may be ſuppoſed acquainted with the proper methods.

For theſe and many other reaſons, I cannot but recommend to all ſpirited improvers, to pay much attention to this important point of laying down land to graſs ——that all ſoils which will profitably admit of it may be duly laid :——the riſe of rent from this management will undoubtedly be great—for moſt ſoils admit of laying either with natural graſſes or with ſainfoine.

As to lucerne, and other more delicate plants, no gentleman who improves *to let* ſhould think of them; they are proper only for their attentive management.

LETTER IX.

IN the plan of conducting ſuch improvements as thoſe I am at preſent treating of *draining* claims a particular attention: this is one of the moſt important objects that will come upon the carpet. It is much beyond the purſe and ſpirit of a tenant: ſome, it is true, do a little; but the quantity ſcarce ever amounts to a complete improvement. To execute it in the manner it ever ought to be, is the buſineſs of an improving landlord.

The general importance of draining lands that are too wet was never diſputed by any one.---It pays a tenant excellently—and all improvements which do that, will undoubtedly enable the tenant to pay rent to the landlord for it.

Some lands are ſo extremely boggy, marſhy and wet, that they yield no ſort of produce without this improvement—— Scarce an inſtance is to be found of a tenant improving ſuch: others of the wet clay, or loamy ſoils, are cultivated without draining—but much improved by it; ſuch in ſome parts of *England* are greatly mended by tenants draining—but even in this caſe, they are very ſlow in their operations, and generally take a long leaſe to improve half a farm, the tediousneſs of which conduct anſwers very little the purpoſes of a landlord.

Whatever be the nature of the draining required, by all means let it be the landlord's buſineſs——and he may depend on the eaſineſs of paying himſelf, in rent, excellent intereſt for his money.

Bogs and marſhes are not the ſubject of our preſent enquiry, they come under the head of uncultivated land. What I ſhall therefore confine myſelf to at preſent, is the draining wet and arable graſs lands that are in culture.

The firſt attention to be given to this improvement, conſiſts in examining the ditches; to ſee if a ſufficient deſcent is already in being, to carry the water clean from the farm, till this is effected, it is in vain to begin the work of the ſmaller drains;—and as the whole farm is at the ſame time new fencing, this part of the buſineſs may be executed with the utmoſt facility.

The method above all others to be recommended, is that of covered drains. The gentleman ſhould contract with a ſufficient number of men at *Michaelmas*, to complete the whole work by the end of *April*. They ſhould be dug of various depths and ſizes, proportioned to the length, the wetneſs of the land, and the ſoil. The following ſcales are ſuch as frames ſhould be made by for the men to work from. See Plate IV. Fig. 1. Each to be filled up to the croſs line: if the workmen have a frame of ſlit deal of ſuch ſhapes to draw after them through their work, they cannot commit miſtakes either accidental or wilful: the depths ſhould be varied ſufficiently to gain a deſcent for the water. They ſhould all be filled up to the mark drawn acroſs them in the center. The materials to fill with, muſt depend on the circumſtances of the neighbourhood. If the country be ſtony, that will be the beſt and cheapeſt to fill with; in woodland countries, refuſe wood and buſhes will be eaſieſt had:——In ſome places, bricks will be moſt expedient. In a word, the improver

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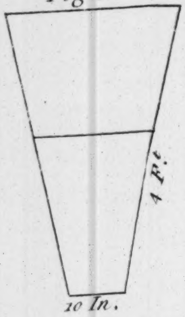
Fig. 1.



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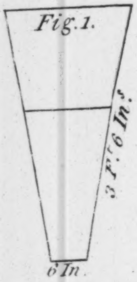

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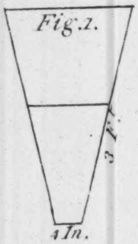
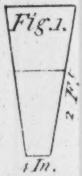


Fig. 1.



This Figure referr'd to as in Plate IV, in the Print.

Fig. 5.

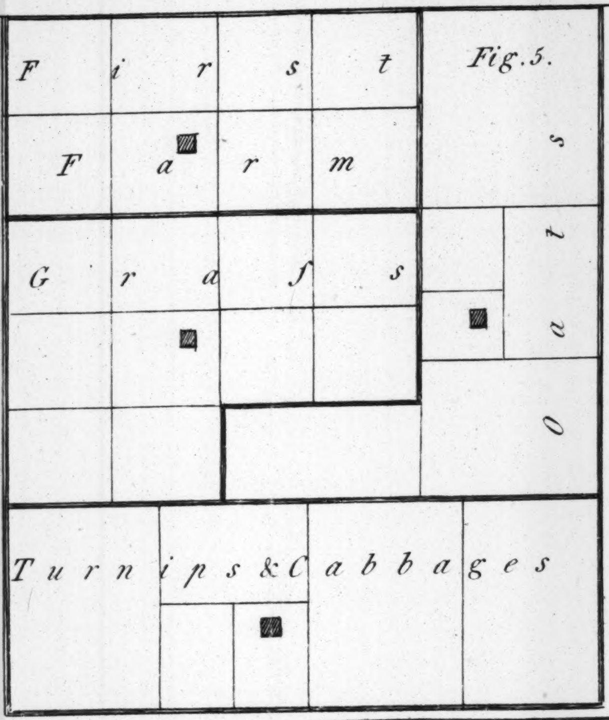


Fig. 6.

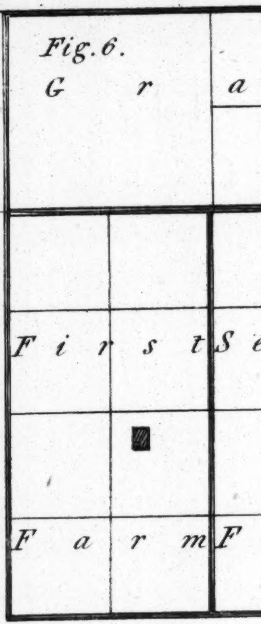


Fig. 3.

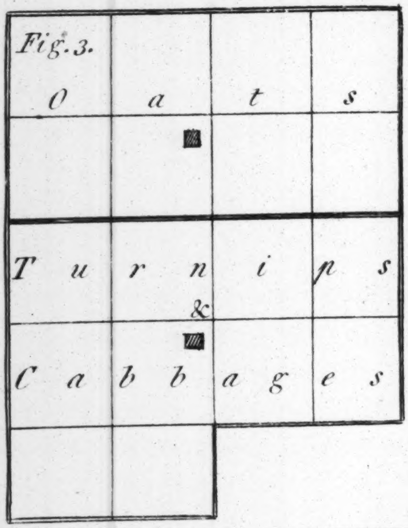
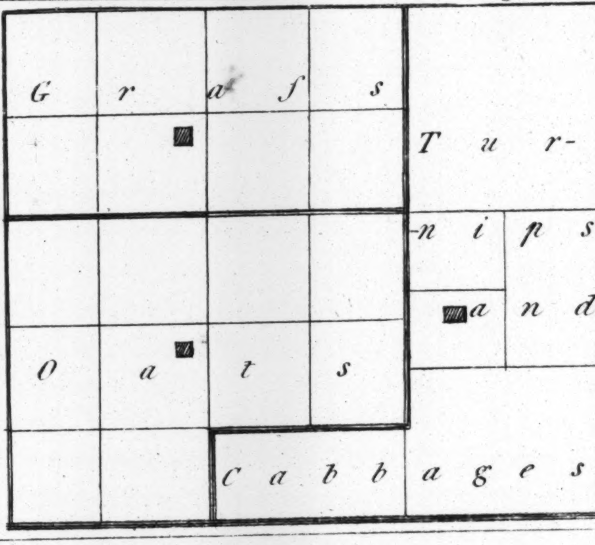


Fig. 4.



prover muſt in this be guided by circumſtances; but whatever he uſes, he ſhould lay a thin cover of ſtraw, fern, or young ling, to prevent the earth from falling into the crevices of the ſtone or wood.

The prices of the work will depend on the general rates of labour in the neighbourhood; in none will the expence be any thing comparable to the profit. The benefit of theſe drains is immenſe; in many ſoils they are actually alone ſufficient to convert bad land into good—to more than doubling the rent. Whenever a wet ſoil is met with, I would on all accounts recommend to the improving landlord to determine immediately the drainage. He can in no way lay his money out in a more judicious method; nor in one more certain of paying him. In the wet ſoils which are converted from arable to graſs, this improvement will be found of the utmoſt expediency, the graſs will come with ſurprizing luxuriancy after this work.

The number of common farmers who execute ſmall quantities of it, ſhew plainly their idea of the profit attending it: here and there a great farmer, who has money ſufficient, drains his whole farm in this manner at a conſiderable expence and with a vaſt and certain advantage; which ſhews that the only reaſon of the practice not being univerſal, is the farmers inability of bearing the expence. But as the landlord has no ſuch motives to reſtrain him, he may ſafely venture largely in the work, and with an aſſurance of great profit.

Suppoſe the land perfectly flat, and very wet; and to require from 50 to 70 perch *per* acre; this at 6 *d.* a perch, digging and fitting, comes to not more than 30 *s.* an acre, though in all probability the ſoil with half that number will be near doubled in value; however, without ſtating ſuch, or any other particular inſtances, we may venture to aſſert, that this work of thorough draining, is of ſuch an excellent nature, and ſo eſſential to good huſbandry, that an improver need not entertain the leaſt apprehenſion of being repaid his money with the moſt ample intereſt. He can expend it in nothing that will more certainly anſwer.

LETTER X.

THE next article of improvement, upon which I ſhall for a few minutes demand your patience, is the *clearing the ſoil from ſpontaneous rubbiſh, and manuring it.* The firſt part of this work concerns chiefly graſs lands, which ſlovenly tenants have ſuffered to be overrun with buſhes, brambles, mole, and ant hills, *&c.* In many thouſand acres of graſs, which I have at different times viewed, vaſt quantities I have ſeen thus reduced one half in value. Land that ought to yield noble crops of hay, producing nothing but a little ſheep feed; or grazing a few head of young cattle.

The moment a landlord begins his works, let him aſſign a proper number of men to grub up all the ſpontaneous growth, in ſo thorough a manner, that the ſcythe may never after meet with any obſtruction: and at the ſame time ſet a mole-hill plough to work, to cut off all ſuch hills, and then have them chopped in pieces and ſpread about the land: if there are any great inequalities of ſoil, ſuch as ſmall hillocks, or pits, *&c.* they ſhould all be levelled: theſe works are indiſpenſable, for without them even draining will not have its effect of making profitable paſtures and meadows; there cannot be a moment's doubt of theſe works anſwering greatly, ſince they undoubtedly decide the point of the ſoil being *waſte* or *profitable.*

As to manuring for a landlord, it is only the expenſive laſting ſorts that they can with propriety attempt; ſuch as marle, chalk, or clay. When a gentleman poſſeſſes a tract of dry light or ſandy land, the rent of which for want of fertility is very low; in no caſe can he expend his money to greater advantage, than in digging ſuch manures and carting them in large quantities on to the land: this is another of thoſe improvements the benefit of which are ſo extremely clear, that all common farmers execute themſelves, if they have money enough; a gentleman cannot deſire a ſtronger teſt of the immenſe profit attending the practice. The lands upon which this improvement is to be recommended,

mended, are generally ſo dry, that they are all under the plough, (except uncultivated ones, which I am not conſidering here) ſo the buſineſs will only conſiſt in ſpreading the manure on the land, and leaving the tenant to plough it in of courſe.

If the improvements are undertaken, while the old tenants are on the farms; or if teams can in the neighbourhood be *contracted* for in ſufficient numbers to carry all the manure at a cheap rate and in a certain time, the gentleman I think in this, as in all other caſes, ſhould avoid incumbering himſelf with the purchaſing and keeping teams and carts; but improvements of this ſort ſhould not *therefore* be given up or omitted—they are profitable enough to pay all expences. The labourers who dig, fill, and ſpread the marle, muſt all be paid by the great, which is the cuſtom in theſe improvements, I believe, in every part of *England*.

The quantity laid *per* acre, ſhould be large, if you wiſh for a great and laſting improvement. In *Norfolk*, where their marle is very rich, fat, and ſoapy, they lay on ſo much as from 80 to 100 loads, each 30 buſhels; and very ſeldom, if ever, find that they have laid too much: from hence we have reaſon to ſuppoſe, that of inferior ſorts, the quantity ſhould never be leſs than 100. The price to the labourers for digging, filling, and ſpreading, in pits where they can throw directly into the carts, is from 25*s.* to 30*s.* *per* 120 loads. And in other countries where the chalk is drawn up in buckets, the price is 6 *d.* *per* load of 25 buſhels—after which comes the expence of filling, carting and ſpreading.——The total expence of the firſt will never be leſs than 3 *l.* an acre, and of the laſt it will be 5 *l.* This expence is heavy, and ſhould not therefore be undertaken where there is not a certainty of its ſucceeding, in raiſing greatly the rents of the farms, the excellence of the manure will not in that caſe be the only enquiry, but whether the farmers think it ſuch; for if they have not been uſed to it, or know nothing of the matter——and if you cannot get tenants from other places that do underſtand it, you moſt certainly will be a loſer, for you will have to occupy the land yourſelf, whether you would or not. But in countries where theſe manures are known, you will be under no difficulty of this ſort; ſpreading 100 load an acre, will at once raiſe your rents enough to pay excellent intereſt.

I ſhall not venture to recommend to a landlord the laying on any manures, that will not laſt for twenty years :—ſuch are more the buſineſs of a tenant, and are much better done in moderate quantities, varied, than all at once; for the expence of procuring them at once would be immenſe——beſides diſtracting his attention with complex buſineſs, which ſhould be avoided whenever it can; I will not aſſert, that there can be no ſituation in which ſuch a conduct is proper;—but only that in general, it ſhould be avoided.

LETTER XI.

THERE is one part of improvement which has been ſtrangely neglected by many improvers; it is that of *roads.* There is not a greater or heavier expence to a farmer, whoſe houſe, barns, and land perhaps, are ſome diſtance from the high road, than to have a bad home one. His teams after a ſevere journey are probably more fatigued, whipped and worried in the laſt half mile, than in all the reſt of the journey; and his waggons, carts, harneſs, *&c.* more damaged. Tenants ſcarcely ever will be perſuaded to lay out money which does not immediately repay in ſome viſible profit—caſh in hand; the loſs by ſuch roads, does not ſtrike them in the ſame manner; but the advantage of remedying the evil, they allow at once; only think it the landlord's buſineſs——and ſo I would have it made, wherever ſuch pieces of bye road are to be found: by all means let them be made ſo good as not eaſily to wear out in one leaſe; firm and ſtrongly mended with ſtone and gravel. And if the farm is large, and ſome particular track leads to many fields, the ſame conduct ſhould be obſerved there; it ſhould be made a good hard road. A landlord need not fear being repaid for ſuch works. When the farm is to let, and the farmers come to view it, a union of ſuch works will ſtrike forcibly on their minds, although they never would have executed them themſelves, yet will they, undoubtedly, at the firſt word, bid good rent for ſuch expences. It would be uſeleſs to enlarge upon this topic; I apprehend the propriety of the work will not be diſputed. In executing it, the neighbouring farmers would undoubtedly contract for the whole.

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Another object which deſerves the attention of an improver, is the article of *water*. If there are many paſtures in a farm without water, the loſs and inconvenience to the tenant, is very great: ſome farmers I have known to dig ponds on this account; but the number of ſuch ſpirited occupiers is not great—though all are ſenſible of the clear importance of the object. The loſs of driving cattle far to water, is great——it is very miſchievous to a dairy of cows, or a herd of young cattle, but it is abſolutely fatal to fatting beaſts, which ought on every account to have plenty always at hand. This is a branch of improvement, which a landlord ſhould on no account ſlight.

LETTER XII.

HAVING thus run through the principal parts of improvement, which claim a landlord's attention, I ſhall, in the next place, offer a few remarks on the aggregate buſineſs, and the manner of conducting it.

The grand object is profit; the improver muſt have his figures at all times in calculation to know the expence of every thing ——the riſe of rent——of intereſt—— and the annual profit: for he is to have nothing to ſay to improvements, that have not that acknowledged utility which will clearly pay him in rent; and he is always to remember that he pays 4 or 5 *per cent.* himſelf for the money—conſequently the groſs return muſt be much higher. Lands that let at low rents, are what will *beſt* pay: thoſe which already bring an high one, will pay but little for any improvement, except the laying arable to graſs.

Suppoſe a gentleman has 500 acres in 2 farms of a middling land that has been run much out of order; the ſoil flat, and wet. He determines to improve it; the buildings are many of them very bad—— ſome middling——and a few that wants but little. The fences all out of order; the hedges poor—and the ditches filled up —the land very wet, but none of it drained: a much greater proportion of it arable than ought to be. Under theſe and other circumſtances he begins his undertakings a year, or thereabouts, before the expiration of the leaſes.

He immediately contracts with a carpenter and a maſon, to build him in a proper ſituation, a new farm-houſe of brick and tile——to repair the two old houſes in a given manner, probably much reducing them in ſize. He contracts with another carpenter and bricklayer to build him, to the intended farm-houſe, a farm-yard with barn, cow-houſe, *&c.* all upon a given plan; the foundations of brick, ſuppoſe the ſides of boards, and the coverings of tile; all particulars of the building to be deſcribed in the contract.——He at the ſame time contracts with one of theſe ſets of workmen; or another ſet to add to the offices of two old farms, a new ſhed—hogſties and walling enough to complete a yard. He likewiſe agrees with carpenters for ſo many new gates——ſtiles—poſts—rails and pales of given dimenſions.

Having taken theſe meaſures reſpecting the buildings, and the carpenter's ſhare of the fences——he next ſets all the labourers to work that he can get to hedge and ditch: he claſſes them in fives, and agrees with each party for a certain number of perch to be dug by frames. It will be no difficult matter to get any number of hands for ſuch works, if one or two men offers, you have only to tell them, they may have a whole winter's work certain, if they can get partners, to make the number not leſs than five; to be ſure of a winter's work, and to work in company with a great number, are very enticing circumſtances with all theſe people.

In the next place, the improver muſt take theſe mens account of the quantity of buſhes, ſtakes and edders, wanting in each diviſion, in caſe the old hedges are not ſufficient to ſupply the requiſite number; and contract with the neighbouring farmers, for the delivery of the ſame.

He muſt then ſet freſh hands to work, to drain all the flat and wet parts of the farms, by means of covered drains to be worked by frames, by which method men who never did the work before, will execute it with eaſe—they muſt be marked out for them with ſtakes. At the ſame time the improver muſt contract with his tenants or other farmers, for the delivery of materials for filling the drains with ſtones, bricks, faggots, *&c.* whichever is cheapeſt.

At the ſame time that theſe works are carrying on, he muſt ſet other labourers to work, to grub up all buſhes, brambles, *&c.* in the paſtures; and having procured a mole hill plough, he muſt contract with his tenant for ploughing them off, and then ſet men to chop and ſpread them.

He likewiſe contracts with the farmers to bring a ſufficient quantity of gravel or ſtone, for the making or mending the road or roads.

All theſe works, except maſonry, are to be begun at *Michaelmas*, and the execution of them continued without interruption throughout winter, which is the proper ſeaſon for executing them.

Every ſpecies of improvement cannot be wanting upon one tract of land; but it ſhould in general be obſerved, that the winter, when labourers are to be had in the greateſt plenty, is the moſt proper ſeaſon for all works of improvment except maſonry: digging and carting marle, *&c.* will do exceedingly well in ſummer—but the ſame in winter.

If labourers are not to be had in ſufficient plenty—which is not probable, when they earn ſomething more then the ſtandard of the country, then the works muſt be divided—ditching and fencing in winter, and the other buſineſs in ſummer; but it is adviſeable to raiſe the prices of all ſorts *per* perch, ſo high as to inſure the requiſite number in winter; for if that ſeaſon is omitted, much higher prices will be neceſſary in ſummer, when work in general is ſo much more plentiful.

Thus far we find, that all theſe branches of improvement may be carried on and completed, without the gentleman buying one horſe or hiring a ſingle labourer by the day: this in many countries would be a matter of great conſequence: the point of contracting for carriage—or buying teams and building carts and waggons to perform the works is a diſputed one——and cannot have one general deciſion; the choice muſt inevitably depend on circumſtances. The price at which a ſufficiency of teams may be hired, muſt determine it —when they are to be had reaſonably, it will be adviſable to employ them; for the purchaſe of numerous horſes—the buying of harneſs and carts and waggons——and the hiring of carters——with the providing for both horſes and men, will altogether form a moſt complicated ſyſtem: with a bailiff or overſeer that can be truſted in a moſt particular manner, theſe objections will not equal the expence of hiring teams —and if a gentleman will ſubmit to conſtant and regular attendance himſelf, he will certainly be right to reject the hiring method; ſuch variations, it is evident, muſt all be conſidered, before any plan of conduct is determined.

The improvement of laying arable to graſs, which conſiſts in much preparatory tillage, ſhould by all means be done by hire——for the prices *per* acre of ploughing,

ing, *&c.* are in every part of the kingdom fixed, and much more reaſonable than particular bargains for carting will prove. For this reaſon, the fallowing for graſs ſeeds ſhould all be performed by contract. The ſeeds abovementioned, are to be had in any quantity of every ſeedſman in *London*; ſo that no delay or difficulty need ariſe in the procuring them.

Upon the whole, we muſt ſuppoſe, all theſe neceſſary works contracted for, and the execution of them begun with ſpirit about *Michaelmas*. Then let the gentleman take pens and paper, and form a calculation of the whole, ſuppoſe as follows:

Calculation of the expences of improving the eſtate A. *in the pariſh of* B. *in the county of* C.

Building a new farm houſe complete on the agreed plan, with brick and tile,	180	0	0
Ditto, a new barn ſtable, cowhouſe, hogſties, *&c.* with wallling around the yard,	140	0	0
Carried forward,	320	0	0

Repairing

	l.	*s.*	*d.*
Brought forward,	320	0	0
Repairing the old houſe *d.*	35	0	0
Ditto that *e.* - -	20	0	0
Adding a ſhed, a hogſtie, and walling in a farm-yard at *d.*	50	0	0
Tiling the barn, ſtable and cow-houſe at ditto, - -	32	0	0
Walling in the yard, at *e.* and tiling various buildings, -	47	0	0
Seventeen new gates, five ſtiles—and various paling about the the fences,	40	0	0
3500 perch of hedging and ditching, at 1 *s.* 3 *d.*	218	0	0
40 loads of buſhes, at 7 *s.*	14	0	0
Stakes, and edders, and quick,	10	0	0
Draining 100 acres, 100 perch *per* acre, at 6 *d.* materials included,	250	0	0
D° 100 acres, 60 perch *per* acre,	150	0	0
D° 100 acres, 40 perch *per* acre,	100	0	0
Making a road, - -	50	0	0
Sinking 5 ponds, - -	70	0	0
Grubbing up buſhes, and cutting molehills on 40 acres graſs land,	20	0	0
Carried forward,	1426	0	0

	l.	*s.*	*d.*
Brought forward,	1426	0	0
Four ploughings of 350 acres, at 5 *s.* - - -	350	0	0
Three harrowings, on ditto at 4 *d.* - - -	17	10	0
Rolling ditto at 1½ *d.* -	2	3	9
Water furrowing, 6 *d.* -	8	15	0
Graſs ſeeds for ditto, at 17 *s.*	297	10	0
Sowing ditto, at 6 *d.* -	8	15	0
	2110	13	9
Incidental expences, -	89	6	3
Total, - - -	2200	0	0

The whole improvement, therefore, amounts to better than 4 *l.* *per* acre; including the expence of throwing the 500 acres into three farms inſtead of two; which circumſtance is ſuppoſed a contingent on laying the whole, or nearly the whole to graſs; which lets often in moderate farms better than in long ones.

Conſidering all the preceding unfavourable circumſtances, we cannot eſtimate the old rent of the land at more than 8 *s.* *per* acre. I am well acquainted with many thouſand ſuch acres that do not bring more than 6 *s.* or 7 *s.*

	l.	*s.*	*d.*
500 acres at 8 *s.* - -	200	0	0
Intereſt of 2200 *l.* at 4 *per cent.*	88	0	0
	288	0	0

This ſum is the total of the landlord's expence at the concluſion of his improvement. The old rent muſt be reckoned, becauſe it is in fact a part of his expence: ——it may be called his original ſtock in trade.

To ſtate the riſe progreſſively, to ſhew the extreme profit of ſuch improvements,

Suppoſe the riſe of rent, 3 *s.* 6 *d.* *per* acre, the rent will be,	£.288 0 0

Here we at once find, that an improver who undertakes ſuch works as theſe I am at preſent recommending, whatever his *profit* may be, is yet under an abſolute moral certainty of not loſing by his undertaking. Since the ſmall riſe of 3 *s.* 6 *d.* *per* acre repays him the intereſt of all the money he expends in theſe various improvements: it is true, they are only ſuppoſitions;

poſitions; but any attentive reader will at once ſee that I have ſketched every article *high*, and drawn numerous improvements into a ſmall ſpace, purpoſely that the imaginary ſum total might at leaſt be equal to the reality on ſuch land.—In fact, this ſtate, muſt exceed the average of requiſite improvements; ſo that although I am only ſketching the method of drawing out the general account, yet taking a real ſpace of 500 acres for my guide; an opportunity offers for a few remarks on the general expediency of ſuch undertakings. But few tracts would require ſo large an expenditure as I have ſuppoſed.

The certainty of *not loſing* by the buſineſs would be particularly ſatisfactory to ſome perſons; and the indubitable ſecurity of that circumſtance is too great to admit a moment's doubt.

	l.	*s.*	*d.*
Suppoſe the riſe, 5 *s.* an acre, the rent will be - -	325	0	0
Expences, - - -	288	0	0
Clear profit, - -	37	0	0

Suppoſe

	l.	*s.*	*d.*
Suppoſe the riſe 7*s.* an acre, the rent will be,	375	0	0
Expences,	288	0	0
Clear profit,	87	0	0
Suppoſe the riſe 13*s.* the rent will be,	525	0	0
Expences,	288	0	0
Clear profit,	237	0	0
Suppoſe the riſe 15*s.* the rent will be,	575	0	0
Expences,	288	0	0
Clear profit,	287	0	0
Suppoſe the riſe 17*s.* the rent will be,	625	0	0
Expences,	288	0	0
Clear profit,	337	0	0

I have inſerted this ſcale of increaſe, that the proportions may at once be ſeen.—— As to the probable rent, ſeveral circumſtances are to be conſidered. In the firſt place, the eſtate is divided into three farms inſtead of two; that it may let on that account for the higher rent——which circumſtance is ſtated; under a contrary ſuppoſition the expences would have ran lower. Secondly, the buildings are all brought into moſt complete repair; thoſe which were thatched are covered with tile, and every circumſtance obſerved to render them uſeful and durable; many new ones erected in a complete manner; and the unuſual attention of forming the moſt convenient farm yards to each farm, executed with ſpirit. Thirdly, the fences are brought into ſuch repair as not to be ſeen in one farm in five thouſand; excellent hedges every where made: gates and poſts new, and weak places and deep ditches to drain the fields, as well as to render the hedges impenetrable; a work which takes a great annual expence from the new tenant. Fourthly, all the wet lands drained in the moſt complete manner; an improvement which is every where known to change the nature of theſe ſoils, and in numerous inſtances alone ſufficient to convert bad into good land. Fifthly, the graſs fields are all cleared from all buſhes, rubbiſh and mole-hills that may have infeſted them. Sixthly, roads made in a firm and laſting manner, which is alone a conſiderable annual ſaving to a tenant. Seventhly, ponds ſunk in the fields that wanted water. Laſtly, the grand article of the wet arable lands being ſummer fallowed, and laid down completely to graſs, an improvement alone ſufficient in moſt parts of the kingdom to add immenſely to the rent.

When a farm in ſuch a country is put into repair, ſome few of theſe improvements may have been executed; but where are we to find an eſtate, in which ſuch an union of works is executed!

Where is a tenant to go for a farm in ſuch complete order? where is he to find one that will require ſo few diſburſements from him? We very well know the increaſe of rent demanded, and had for vaſtly inferior works, what therefore may not rationally be expected for farms that are ſcarcely to be equalled in the kingdom?—Let it be well conſidered, what great ſums of money, proportioned to his fortune, a tenant muſt expect to lay out, when he enters a low-rented unimproved farm of this ſort. Such can only be hired to any profit by rich men; whereas, after theſe improvements, a tenant comes into full advantage with a comparatively ſmall ſum of money, ſince every ſhilling he poſſeſſes, is applied to the mere *ſtocking* his farm:

this circumſtance is of great importance, for the ſmaller the ſum of money with which a farm can be advantageouſly hired, the more people will it ſuit; and conſequently the greater will be the demand for it.——All theſe points, which ſo ſeldom unite, conſidered, I have not the leaſt doubt, but ſuch graſs farms as I have deſcribed, would let with the utmoſt readineſs for 25*s. per* acre. Nor can I conceive the leaſt difficulty, from the obſervations which I have made in many parts, in letting any quantity of land ſo improved for that rent; 20*s.* an acre is a common price in every county in *England* for graſs farms, without one tenth of the advantages here executed.

25*s. per* acre is the laſt article in the above ſcale of increaſe: the clear profit, old rent, and intereſt of money paid, is 337*l.* a year. His money pays him therefore 19*l.* 6*s. per cent.* conſequently his own clear profit is 15*l.* 6*s. per cent.*

337*l.* on 500 acres of land is 13*s.* 4*d. per* acre *per annum* profit.

From theſe circumſtances, the vaſt importance of expending money in this manner, is ſufficiently evident. To gain in one year a fee ſimple of above of three hundred a year clear, is undoubtedly the moſt profitable uſe ſuch a gentleman can make of his time and attention. It will probably take him abundantly more time, and ſomewhat more anxiety, to gain a patent place of 300 *l.* a year from a miniſter: and he will not eaſily raiſe 8425 *l.* (the ſum which the above income will pay the intereſt of) in a more certain, advantageous, or creditable manner. It is extremely clear, that whether a gentleman wants to increaſe his annual income——or to raiſe a ſum of money, there are no means half ſo beneficial, or ſo eaſy to be executed, as improving his eſtate.

Let it be obſerved, that the improved land bringing 25 *s.* an acre rent, is to me extremely clear—but for the uſe of others, whoſe opinion is different, ſuppoſe the rent a guinea; the clear profit *per annum* is then 237 *l.* old rent, and intereſt of capital paid, which income will pay the intereſt of 5925 *l.*

It would be uſeleſs to multiply theſe ſuppoſitions, but let them be reduced to the ſtandard of the oldeſt man, that has jogged on in the path of his anceſtors, they will ſtill be found to yield great profit.

By theſe methods, of a gentleman improving his eſtate, he makes at once better intereſt for his money, than nine tenths of the merchants of *Great Britain*; he enjoys a *certain* perpetual return of near 20 *per cent.* for the hazard and expenditure of a ſingle year: an advantage to be found in no trade whatever.

When it is probable and even certain, that ſuch immenſe fortunes may be made by thoſe whoſe eſtates are ſo improvable, ſurely it much behoves all ſuch landlords to think more ſeriouſly upon the ſubject, than moſt of them have hitherto done. It is but a poor anſwer to ſuch a propoſition, to ſay that they know but little of country affairs, and could not therefore engage in ſuch complicated works: this is the anſwer of indolence or prejudice. There is no work ſtated in the preceding improvements, but what moſt landlords execute at one time or another.——Buildings muſt be repaired, and ſometimes new ones built: covered drains are made by many landlords in every part of the kingdom.——What is there, is complicated, or ſo difficult in hedging and ditching? in the making a road, or the digging a pond? do not three fourths of the country gentlemen lay down arable to graſs, at various times, upon their own farms? If all ſuch operations were at once to be executed by labourers paid by the day——certainly a good overſeer or two would be highly requiſite, though perhaps difficult to get—but when nineteen parts of twenty of the whole would be performed by meaſure—where is the difficulty of the work? I will venture to aſſert it to be extremely trifling.

But granting there would be much difficulty in the undertaking to gentlemen who wanted activity—ſure it would be no ſuch impoſſible matter, to commit the undertaking to the management of another. To ſome perſon of knowledge and activity, who would conduct the whole buſineſs, and be paid merely by ſo much *per cent.* on the improvement—that is, on the clear profit of the undertaking. Such a method of paying him would inſure the utmoſt vigour and attention, for if there was no profit to the landlord, there would be none to him—and in proportion to the increaſe of the landlord's rent, ſo would be his profit.——Suppoſe ſuch a perſon to have 5 *per cent. per annum* on the *clear* improvement, old rent and intereſt of money paid, ſuch a profit in large undertakings would make it anſwer to ſuperior kinds of improvers to give their attention to the buſineſs: but in the improvement of ſmall eſtates that would be inſufficient. Thus, if an improvement yielded 300 *l.* a year clear, the conductor of it would have 15 *l.* a year; but as the work would require near a year's attention, ſuch a perſon muſt either contract for the improvement of ſeveral contiguous eſtates at once, or he would not be ſufficiently paid for his time. Upon ſome plan of this nature, I ſhould apprehend it no difficult matter to procure a proper perſon for the work.

The expenditure of 10,000 *l.* in the above proportion of 337 *l.* yields a *clear* profit of 1531 *l. per annum.* An object of conſequence to the largeſt fortunes!

I have in theſe ſuppoſitions confined myſelf to wet and ſtiff ſoils——but with thoſe very dry ones that are improved by marle, chalk or clay, or by laying down to ſainfoine, the profit is yet greater; for vaſt quantities of thoſe ſoils are let for ſo low as 6 *d.* and 1 *s.* an acre, and are by ſainfoine alone in many inſtances advanced to 10 *s.* and 12 *s.* And other ſoils formerly let at 2 *s.* 6 *d.* 3 *s.* or 4 *s.* are advanced, only by the ſame cheap means to 15 *s.* and even to 20 *s.* *per* acre.

The improvements alſo by marle, *&c.* are extremely great; 3 *l.* an acre expence has often doubled, trebled, and even quadrupled the old rent. In either of theſe improvements, the clear profit to the landlord much exceeds that of the ſtiff land, which I have ſtated: I fixed on that to be more particular on—becauſe if the advantage of improving that, appeared to be great, it was at the ſame time proving the other to be yet greater.

Upon the whole, I cannot but earneſtly recommend to all landlords, whoſe eſtates are not improved to the utmoſt, to reflect on the very conſiderable loſs they ſuſtain by not ſetting vigorouſly about the work. The advantages are not at all ideal.—— They in no *reſpect* depend on novelties; or on any delicate articles of culture of dubious event.—On the contrary, every particular of the improvement conſiſts in ſuch common huſbandry as very good farmers in every part of the kingdom practiſe——though on a ſmall ſcale:——and which all good ones would execute in large, were they poſſeſſed of money ſufficient. That I have been extravagant in no reſpect concerning the benefit of the improvement, will appear clearly from the conſideration of the conduct of the common farmers: many of them, upon even ſhort leaſes, practiſe more or leſs of all theſe improvements: it is abſolutely requiſite to them, that ſuch works pay them both principal and intereſt in a few years: we may be confident of this, from ſeeing them undertake ſuch works: the extent of this profit ſhews plainly, that I have been very moderate in the ſuppoſed profit to the gentleman.

The advantages which the State muſt ever reap from the private profit of individuals, ſo gained, are extremely great; ſo very important, that no man can perform greater ſervices to his country than by improving land: the benefit of the nation is proportioned to his private profit; ſeldom the caſe in other ways of advancing a gentleman's fortune!

PART II.

UNCULTIVATED COUNTRIES.

LETTER I.

HAVING offered the preceding hints on raiſing the rents of cultivated eſtates, I ſhall, in the next place, diſcuſs the improvement of uncultivated ones; or thoſe which are applied only to the feeding of ſheep or rabbits: they conſiſt principally of moors——downs——wolds——heaths——marſhes——warrens, *&c.* generally open, but ſome few incloſed.

The moors being much the moſt extenſive waſtes in *Britain*, I ſhall begin with them.

The ſorts of moors are various, but a general diviſion may be made of *dry* and *wet* ones; which throws them into the only variety neceſſary to cultivation, as all the dry moors are improvable upon one plan; and moſt of the wet ones upon another. The ſoil of both is various; but the general predominancy is the black earth; which is very porous, and looſe, burns well; and is found to various depths. I do not call it peat, becauſe it is quite different from the ſouth country peat. The ſpontaneous growth is in general ling, called *heath* in the ſouth: the growth of which, is an index to the natural fertility of the ſoil. In ſome places, this black earth is mixed with a white ſandy grit, which is reckoned a bad ſign. The other ſoil, of which the moors conſiſt, is a fine light, ſound, dry loam, of various depths, called in the north White Land; the ſpontaneous growth, whins, and ferns, this land is excellent; equal to much that is let in cultivated countries for 15*s.* an acre.

Before I proceed to further particulars, it will be proper to mention ſome general notions common in the north, concerning the improvement of moors. There are two parties, one inſiſts that moors cannot be profitably improved: the other not only avers the contrary, but prove their aſſertion by bringing into culture various tracts; but the number of theſe, I ſhould obſerve, is ſmall:——however, the very worſt parts of moors have by different people been cultivated to great profit.

Having viewed the moors throughout ſeveral parts of *England* with great attention, as well wild as improved, I ſhall venture to ſpeak with ſome certainty on the ſubject.

That every acre is greatly improvable, cannot be aſſerted—the tops of the mountains will not yield the ſame advantage as the loweſt valleys—but I ſhall ſoon endeavour to prove, that the blackeſt mountain is *ſuſceptible* of improvement. But as to all the other parts of the moors, I will venture to aſſert, that more improveable land is no where to be met with: nor do I offer this opinion at random, but I would venture my fortune on the point of rendering them as profitable farms as any in the world. I am convinced of this fact —not from opinion, nor the aſſertions of one or two men, but from the repeated experience of many very prudent as well as ſenſible improvers, in ſeveral parts of *England*. And the practice of many little farmers adjoining the moors, proves this matter likewiſe beyond a doubt; for I have viewed many incloſures taken by ſuch from the moors, that have evidently, and according to the accounts of the farmers themſelves, yielded a moſt extraordinary profit.

I ſhall therefore venture, on the ſureſt grounds, to aſſert, that any gentleman who poſſeſſes moors, may with the utmoſt ſafety conſider them as highly improvable. I ſhall proceed to ſpecify the various methods of completing their improvement. The firſt of which, is the erection of the proper buildings.

In this reſpect, no eſtates are comparable to the moor ones——for ſtone, ſlate and lime, are to be had in moſt of them without any extraordinary trouble or expence, being raiſed on the ſpot: theſe are advantages which reduce the price of building to a degree incredible in the ſouth of *England*.

Stone is every where ſo plentiful in the moors, that the appearance of it is one among many other reaſons of larger tracts not being improved: for the ſtones have ſuch a tremendous appearance, that they frighten people from the improvements.

Where it appears above ground, it is ſeldom limeſtone——which generally runs in ſlaty quarries. The grit ſtone is that which commonly is found. It is of ſo ſoft a nature, that it rives with a beedle like ſoft wood, inſomuch that the expence of reducing it to the regular ſhape of bricks, is but trifling: the advantages of building in ſuch a country are ſufficiently ſtriking. Some ſpots of the moors are ſo extremely ſtony, that if the gentleman attends properly to the ſituation, where he places his farm houſes and offices, he may have frequently the capital advantage of building in the midſt of a quarry.

All the buildings, houſe, barn, ſtables, &c. for a farm of 5, 6 or 700 acres of land, may in ſuch countries be raiſed very completely for 300 *l.* For a farm of 100 or 200 acres, 200 *l.* is an ample ſum to aſſign for ſuch an undertaking.

In ſome moors it is true, the ſtone is of that hard kind, called whin ſtone, but ſuch are not very frequent; limeſtone even in thoſe tracts is very common.

It may be eaſily conceived, that this advantage of building ſo cheap, and at the ſame time in ſo durable a manner, muſt be prodigiouſly beneficial in ſuch undertakings as I am at preſent recommending. Raiſing new edifices in the ſouth of *England*, is ſo expenſive a work, that it alone prevents many improvements of a very important kind: in the north the caſe is thus widely different: is it not therefore aſtoniſhing, that landlords, who poſſeſs ſuch uncommon advantages, ſhould be in general ſo backward in improving? There are many houſes, and offices to ſmall farms in theſe countries, that are raiſed complete of ſtone and ſlate for 50 *l.* containing all the buildings to a whole farm.

Next to the article of building, comes that of incloſing; and the ſame ſtones that are ſo highly advantageous in the one caſe, are equally beneficial in the other. The ſtones, whether of the grit or lime ſort, form the walls of the incloſures, the moſt cheap and durable fence in the world; eſpecially the grit ones, which rive in thicker and larger flakes than the limeſtone; and from the rough grittineſs of the ſurface, hangs better together. The total expence of walling, including the cutting, carrying, and laying the ſtones, is 5 *s.* 6 *d.* *per* rood, of 7 yards in length, and 5 feet high; and a gate, two ſtone poſts and the irons complete, come to but 6*s.* Theſe are proofs of the amazing cheapneſs of incloſing ſuch countries.

Let me alſo add, that the incloſures being made of the ſtones that are found ſo plentifully upon the land, is a circumſtance of the moſt fortunate nature, for theſe ſtones muſt be removed before any culture could go on: they are in ſome places ſo thick, that the fields muſt be made ſmall to clear the land entirely of them: thus peculiarly favourable is this country to improvement; it is parallel to a ſouth country farmer, forming his fences of the brambles, thiſtles, and couch graſs that infeſts his land——clearing it from an evil at the ſame time that he acquires ſo great a benefit.

In thoſe moors that do not abound in ſtone, the common fence of a hedge and ditch muſt be ſubſtituted inſtead of walls. They are ſomething cheaper in making, but in the ſhortneſs of duration, and the expence of repairs, are much dearer than walls.

One circumſtance ſhould be remembered in the incloſure of moors; it is that of raiſing ſhelter by planting ſcreens againſt the neighbouring uncultivated parts; for which purpoſe, I ſhould recommend to incloſe, the tract to be improved with a double wall, at about 20 yards diſtant from each other, which ſlip to be planted with the fir tribe, as that ſpecies of timber forms by much the beſt ſhelter of any others: but this double incloſure I mean only to be made againſt the adjoining open country, over which the wind blows very bleak; and not be guided by the point of the compaſs, but if the moors join, you plant them out, on whatever ſide: A ſouth wind over a waſte tract of country, is worſe than the north from cultivated incloſures.

The price of 5*s.* 6*d.* *per* rood for walling is that for the grit ſtone that lies above ground—or for the limeſtone that is taken from quarries under ground.

Theſe two points of the buildings, and the incloſure being diſpatched, we muſt next come to the bringing the ſoil into culture; which I ſhall make the ſubject of my next Letter.

LETTER II.

THROUGHOUT all the north of *England*, the proper method of breaking up waſte ſoils is agreed, from a long courſe of uninterrupted experience, to be paring and burning; but as it has of late been the faſhion in the ſouth to explode this culture, ſomething muſt be ſaid to reconcile ſuch jarring opinions.

The advocates for this method of improvement, produce a vaſt range of experiment to juſtify the practice; whereas its enemies found their opinion merely on reaſoning. How is it poſſible, ſay they, that it can be profitable huſbandry to reduce an inch of the beſt part of the ſoil every 15 or 20 years to the thickneſs of a ſheet of paper? The argument is plauſible, but what would be of twenty times the importance of an hundred arguments would be to produce a field of a thin ſtaple: *this land was once* GOOD *in the depth of ten inches of ſoil; it is now* BAD *from having but four.* But no ſuch inſtances have, or can be brought. On the contrary, it is to be proved in all the countries where paring has been long in vogue, that very ſhallow ſoils have been many times pared within the memory of old men, who likewiſe retain the tradition of the ſame ſoil having long before their time received the ſame treatment, and yet remained at the former thickneſs.

But if the difference of the thickneſs of the turf pared, and the thinneſs of the aſhes ſpread were the rule to judge by; the argument in proving too much, would prove nothing. Many tracts of the ſhallow land in queſtion, have been known to be regularly pared, and burnt once every 12 or 15 years, for a century paſt. Now ſuppoſing it had loſt $_{3}$ths of an inch every time, in only eight times ſuffering this operation, the ſurface muſt have been reduced 6 inches in thickneſs: but how does ſuch a ſtate of the caſe agree with the ſoil being at this day 6 inches thick, and well known never to have exceeded it? Which is actually the caſe with ſeveral tracts of land I have viewed both in the northern and weſtern parts of this kingom. There is, in a word, great reaſon to think that this practice does not at all diminiſh the ſtaple of the land.

Whether this be owing to the great crops it is enabled to yield, returning a proportioned part of themſelves to the earth again, which is the caſe with all ſorts: ——or whether the ſurface pared conſiſt not entirely of turf, or the bulbs of ſainefoine, with no earth at all;——or at leaſt none reduced to aſhes, I ſhall not pretend to decide, but the latter circumſtance, I think very probable: Turf, which is nothing but an aggregate of roots and bulbs, may certainly be burnt without any reduction of *ſoil*. I am of opinion that *ſoil* cannot be reduced to *aſhes*; but in this, experiment ſhould decide. A ſtrong confirmation of this notion, is the well known fact that land cannot be burned till it has acquired a turf——that is, till it has gained the thickneſs which was deſtroyed by the laſt burning.

The efficacy of the practice is indiſputable; a middling quantity of aſhes is 500 buſhels *per* acre. Suppoſe a man inſtead of paring and burning at 16*s.* or 18*s.* expence, would bring aſhes to his ground; he would no where be able to get them carriage and expences included under 6 *d.* a buſhel which amounts to 12 *l.* 10 *s. per* acre: it is evident enough, that ſuch a plan would never do.

But the grand point of paring and burning is the bringing waſte ſoils into culture, one may almoſt ſay, in a ſingle day: it is pared and burnt, *once* ploughed and ſown immediately with turnips; a crop which never fails after that management: thus is the work done at once. But ſubſtitute the plough alone——what a tedious, complicated, expenſive proceſs enſues, to bring about a much inferior profit.

I have heard this huſbandry ironically called moſt generous, *for you burn* your own *ſoil to diſtribute it to all your neighbours.* But thoſe who talk thus know not what the operation is; the aſhes are not like thoſe of wood, that blow about like duſt, much of them conſiſts in half burnt roots and vegetables—or at leaſt of a groſs aſh, but little moved by the wind: but ſuppoſing it ever ſo light, who but the greateſt ſlovens leave them to be blown away? On the contrary, they are immediately ſpread and ploughed in hot. We are not to condemn manuring with wood aſhes, ſoot, or lime, and yet the wind affects all of them more than the aſhes in queſtion.

Another circumſtance, very important, is the great efficacy of this huſbandry, in deſtroying ling and other ſpontaneous rubbiſh, at the ſame time that all grubs, worms and inſects are killed; theſe are advantages unequalled by any other mode of breaking up land.

For theſe reaſons, and a thouſand others too numerous to mention here, let me, on all accounts, adviſe the improver of theſe waſtes to adhere to a practice proved from innumerable experiments to be excellent, and not fly to ſchemes that are recommended by reaſoning alone. Let him cordially embrace a method ſingular in that admirable circumſtance of reducing the wildeſt, blackeſt deſart in the ſpace of a ſingle month into profitable crops; a point ſufficient to overcome all the arguments againſt the practice, were every one true. I have actually ſeen a fine promiſing crop of turnips on land, that only a month before was as black as night itſelf.

The price of paring, burning and ſpreading the aſhes in the moor countries, varies from 14 *s.* to 17 *s.* 6 *d.* They perform it very well, and effectually for that ſum, ſo as to have the plough follow them without interruption. This price is cheap; but yet from dexterity and cuſtom they make ſuch good earnings at it, that many men apply for the work, the moment it is known that any is to be done; and I found, from various enquiries, that there would not be any difficulty in having the largeſt quantity of land pared and burnt through a want of hands; however, I ſhall, to obviate accidents and objections, calculate at one pound *per* acre. A price, that would at once draw all the parers in the country.

The benefit of this practice as a manure is every day clearly ſeen by the vaſt crops which ſucceed it for ſome years. I have viewed many fields taken from the very blackeſt moors, that were cropped, firſt with turnips, and then with 5, 6 or 7 crops running of maſlin oats, or barley-big, and laid to graſs with the laſt, reckoned by the farmers then in good heart——and even with this management, the graſs has been directly worth 15*s.* an acre. All which is ſufficient to prove that the ſoil muſt be in prodigious heart after this operation. It is true, they lime a great deal, and of that manuring I ſhall ſpeak next.

LETTER III.

LIMING throughout the moor countries has been long the univerſal practice. In moſt parts of the northern counties, they make it a univerſal manure; probably it is in cultivated countries more uſed than it ought to be.

Many very ingenious men have ſtarted objections to liming even moors; and they found their opinions (for they do not pretend to offer *experiment*) on the qualities of lime where ever found. They want to have it explained with a philoſophical preciſion, how a body that of itſelf is no food for vegetables, ſhould prove ſo rich a manure.——Now I am ſenſible of being very unequal to ſuch ſpeculative points; and as I never conducted a ſeries of chymical experiments on lime, I conſequently, cannot ſpeak from my own experience, but if we compare the qualities which chymiſts give to lime, with the nature of the moors, there will, I apprehend, be no difficulty in accounting for the ſtrong effect which undoubtedly accrues from laying the one on the other.

The moors have ſcarcely any marks of former culture——no tradition gives the leaſt trace of culture——hiſtory to the remoteſt periods gives no reaſon to ſuppoſe theſe parts of the country ever in a ſtate of cultivation; the greateſt tracts of them are in the mountainous parts of the northern counties, which, it is well known, were for ages over-run by frequent incurſions and invaſions of two neighbouring but hoſtile nations. In a word, there is much reaſon to ſuppoſe the moors at this day in the condition they were three thouſand years ago —with no other alterations than the cutting and ſpoiling the ſpontaneous growth by armies, or the poor for firing, and perhaps, in ſome inſtances, for building. They maintain ſome ſheep.

The ſoil, as I before remarked, is a black, looſe, ſpungy ſubſtance: I conjecture all theſe black parts to be literally nothing but rotten vegetables, kept looſe and open by the roots of the ſpontaneous growth. Thus, in fact, the ſoil is a dunghill; an opinion not very contrary to reaſon, when the crops it yields are conſidered. However, land that has laid in ſuch a ſtate for a long ſucceſſion of ages, muſt inevitably be rich: in the north, men are apt to give a ſhrug at the very mention of cultivating them: for my part, I conſider vaſt tracts of them as the richeſt ſoil in the iſland of *Great Britain.* "All rich "ſoils in a ſtate of nature contain oil," ſays an ingenious writer *.

Next, as to lime; one tells us—"There "is a great attraction betwixt quick lime, "and all oily bodies; it unites intimately "with expreſſed oils †." Again, "Its "operation is to exhauſt the earth of its "oils. Lime laid on ground wore out by "continual crops, rather hurts it than "improves it; becauſe it does not meet "oil or oleaginous bodies to act upon and "blunt it. The proper cure for this, is "to mix dung with the lime, ſo that it "may have ſomething to act on ‡." And again, "Lime is a great diſſolver of all "bodies, both vegetable and animal. In

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* *Georgical Eſſays*, p. 20.

† *Home's Principles of Agriculture and Vegetation*, p. 69.

‡ *Ibid.* 70.

" this way it certainly operates in the " earth by diſſolving all animal and dry " vegetable ſubſtances, and converting " them to the nouriſhment of vegetables, " at leaſt ſooner than they otherwiſe would " be *." In another place, " By mixing " itſelf with the oleaginous particles of the " ſoil, and converting them to the nou- " riſhment of plants, lime becomes in this " ſenſe, provocative to the ſoil †."

Now is it not ſufficiently evident, from this deſcription of lime, that the effect of it on a ſoil in the rich ſtate of nature, that muſt abound with oil, muſt be very great. It is miſchievous upon worn out land; for the ſame reaſon it is excellent on new. But even then it is adviſable, if dung is added——which is the addition of what the moory ſoil contains in the greateſt plenty. Further, lime diſſolves all vegetable ſubſtances, and prepares them for the nouriſhment of plants: this is an operation of the greateſt conſequence, on moors which ſeem to conſiſt of ſcarcely any thing elſe. Lime is a provocative to the ſoil.

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* *Ibid.* 70.
† *Ibid.* 72.

This is all the moors want, they abound with natural fertility, but require the aſſiſtance of lime ſpeedily to render it fit for the production of new vegetables.

That theſe moory ſoils are abundantly fraught with oleaginous matter, cannot be doubted, from this circumſtance. It is a common cuſtom, and has been ſo for many years, with thoſe farmers who cultivate their ſoil, to lime their land both arable and graſs EVERY year, if they can get it cheap; and this, whether they dung them or not. Now, all writers agree, that perpetual liming of common ſoils will reduce them almoſt to a *caput mortuum*, unleſs a regular acceſſion of dung be alſo gained. But on moor ſoils, the benefit of theſe repeated limings are indiſputable; and the farmers from long experience aſſert, that you can ſcarcely lay on too much. Now, let me aſk thoſe gentlemen, who affect to call the moors *poor land*, what they think of this fact? Is it not the ſtrongeſt proof imaginable, that the ſoil is an actual dunghill? That it is ſo fraught with fertility, you can hardly deſtroy it?

But there are ſome other general circumſtances concerning lime upon moors, which merit greater attention. There are three points which an improving landlord ſhould particularly attend to: Firſt, the exiſtence of limeſtone upon his eſtate: Secondly, if it is not on his own land, that it be within a ſhort cartage of it on roads either good, or eaſily to be made ſo: Thirdly, that if he enjoys neither of theſe circumſtances, but is forced to draw his line from a diſtance, that the roads be good enough for the uſe of a broad-wheeled waggon. If an eſtate is ſo unhappily ſituated, as to poſſeſs none of theſe advantages, then the improvement of it muſt not depend on lime, but on paring and burning alone; the efficacy of which, on moory ſoils, I am not acquainted with; for wherever I made my enquiries, lime was always at command; nor do I apprehend, that one eſtate in a hundred is in ſuch a predicament: the ſuppoſition, therefore, is not material to the point of improvements in general.

There are ſome tracts of moors, that are ſuppoſed to be without limeſtone; and the farmers adjoining them, bring it 5 or 6 miles; but I could never find that diligent ſearch had been made after it: it is the opinion of the moſt unprejudiced gentlemen, that it might be found, if attentively ſought after; for theſe tracts are not extenſive, and lime to be found at a few miles diſtance all around them. This ſearch, ſhould therefore be the firſt buſineſs of an improver, in ſuch a ſituation.

LETTER IV.

AFTER the incloſure, paring, burning, and liming, the next buſineſs in the cultivation of moors, is the tillage and cropping them: it has been proved by various experience, that theſe lands do much better for graſs than for arable farms. Paſture and meadow gained from the moors, are both good; equal to moſt in the countries; but the common opinion is, that they are not equally beneficial under arable crops: whether this is fact or not, I am not a judge, but I may remark, that the crops they gain, intimate no ſuch matter. Lime from ſpecific gravity certainly will ſooner ſubſide in arable than in graſs land, which is one reaſon in favour of the conduct. However, relative to all gentlemen improvers, this circumſtance of graſs being preferable, is very fortunate, for the more they reduce arable to graſs, the greater will be their profit.

I ſhall, for theſe reaſons, venture to recommend the converting the moor incloſures to graſs as ſoon as poſſible; and this is done with amazing expedition by means of the paring and burning huſbandry.

The common farmers throughout all the north, although their view is graſs land, yet after paring, burning and liming, take four, five or ſix ſucceſſive arable crops, and all but the firſt, corn. This is execrable huſbandry—it is the effect of avarice to get as much as poſſible from the land, and as quick as poſſible: after this, they lay down to graſs; an operation, which in the hands of common farmers is never well performed, and yet the paſtures ſo improved, let from 10*s.* to 20*s.*

The variation from this conduct, which an improver muſt by all means purſue, is to take only two arable crops, the ſecond oats, and with them to ſow his graſs ſeeds. By theſe means the graſs cannot fail of being incomparable, for it inherits all that prodigious fund of fertility which the farmers beſtow on 4 or 5 crops of corn, all great ones. In this method, they would alſo have leſs occaſion to lime ſo often as the common people do.

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In purſuing this conduct, it will be neceſſary to improve a certain quantity of land every year, by which means a proper ſupply of winter green food, hay, ſtraw, and oats will every year be ſecured; an object of much importance. And the teams find a regular employment, which is likewiſe matter of conſequence.

The firſt crop in the common farmer's management, is always turnips, which are univerſally very fine; they never were known to fail after paring and burning. But cabbages may undoubtedly be ſubſtituted inſtead of that root with vaſt profit. In the improvements of moorland by Mr. *Scroope* * of the *North Riding* of *Yorkſhire*, he uſed cabbages for the firſt crop ſeveral times in the ſame field with turnips, and they univerſally much exceeded them. The Earl of *Darlington* * has alſo planted cabbages on pared and burnt land, and with only one ploughing and with great ſucceſs; but his Lordſhip found two ploughings better for this vegetable.——The general fact of cabbages ſucceeding well on pared and burnt moors is proved, however, by Mr. *Scroope* ſo clearly, that there remains not a doubt; I ſhall therefore, in the following calculations, ſuppoſe both cabbages and turnips; part of one, and the reſt of the other.

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* Theſe improvements are to be ſeen at large in the *Six Months Tour through the North of England.*

The gentlemen in all theſe articles of improvement, ſhould contract for as many as poſſible: all the buildings——the walling——and the paring and burning muſt be done by the great; the other buſineſs he muſt provide teams and ſervants for. It might alſo be done by contract: but as the improvement muſt be an annual work, the difference in expence would be too great.

Reſpecting wet moors, I ſhall conſider them ſeparately, but as few large tracts of dry ones are to be met with, without ſome ſpots that are wet, the draining ſuch muſt be included in the following calculations.

Having touched upon theſe circumſtances—I ſhall, in the next place, proceed to ſtate ſeveral caſes of improvement, which will throw the neceſſary light on the ſubject.

LETTER V.

I SHALL here ſuppoſe a gentleman with a large tract of moors, which he has a right at pleaſure to incloſe: the ſeveral attendant circumſtances to be the data for his calculations as follows;

Walling performed from the ſtones on the land at 5*s.* 6*d.* a rood.

Paring and burning at 20*s.* an acre.

No lime on his own eſtate, to be brought from the diſtance of 4, 6, or 8 miles.

The firſt object is the buildings; theſe muſt be proportioned to the ſize of the intended farms. For ſeveral reaſons, I think it in this reſpect particularly adviſable to form a farm of each year's improvement; for by that means, the workmen employed upon the buildings, will ever be at hand to go from one ſet to the other; and the preparatory huſbandry to letting the land, will coincide ſo well together, that one improvement will always be a preparation for another. Upon this plan of proceeding,

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the annual improvement ſhould be of ſuch extent which, in farms, lets in the country to moſt advantage. I ſhall ſuppoſe the quantities various.

The buildings for a farm from 80 to 160 acres all, or at leaſt, much the greateſt part, graſs land will conſiſt of a dwelling houſe, that will coſt about 50 *l.* complete. One ſmall barn, a ſtable, a cow-houſe, and a hogſtie——which with ſome walling in mortar ſhould incloſe a yard, as I before ſketched in the firſt part of this work. All theſe offices will coſt about 80 *l.* or 130 *l.* in all: this, where limeſtone and ſlate are ſo extremely cheap, is an ample allowance; but to obviate objections, I ſhall call the ſum 140 *l.* for any farm from 80 acres to 160; and from thence to 200 acres 160 *l.* From repeated information, find theſe ſums are above the truth.

The quantity of walling will depend on the ſtonyneſs of the moors.——In moſt parts, fields from 20 to 40 acres, will, with the buildings completely clear the ſurface of them; however, I ſhall firſt calculate for various diviſions, and then form variations of other ſizes. The firſt farm I ſhall ſuppoſe of 80 acres, in 10 acred fields, which will lay as follows: Plate V. Fig. 2. The building for ſuch a farm come to, as I before obſerved, 140 *l.* There are $2\frac{3}{4}$ miles of walling, which at 5 *s.* a rood of 7 yards come to 189 *l.* 15 *s.*

Paring, burning and ſpreading the aſhes, at 1 *l.* comes to 80 *l.*

The reſt of the improvement muſt be executed by the improver's men and teams; for which purpoſe, a regular farming ſtock muſt be fixed on the land. This point requires a more explicit diſcuſſion. The number of horſes is the grand point: five will be amply ſufficient for the firſt team: which number in a large ſouth country narrow-wheeled waggon, will draw three chaldrons of lime at a time.

No other live ſtock ſhould be brought in except ſheep, of which as large a flock ſhould be purchaſed, and turned upon the adjacent waſtes, in the ſame manner as the common farmers act, as can be provided for in winter. This is a point of much importance, and muſt not be ſlighted: the moorſide farmers keep their flocks at leaſt 10 months in the year on the moors; never giving them turnips or hay, but in deep ſnows; the breed is very paltry, and they know nothing of folding: my improver muſt act upon a different plan: he muſt change the breed, feed better in winter, and fold all the year round. For this purpoſe, I would not recommend a bringing another breed of ſheep at once upon the moors, but on the contrary, to buy a flock of moor ewes, and tups of a good hardy nature and well made, theſe will improve his ſtock by degrees, and yet keep them pretty nearly to their original hardineſs, which is a point of conſequence: in winter let him feed them better than the farmers; which will make it anſwer to fold in that ſeaſon as well as ſummer. Folding will be an object of vaſt conſequence to him; for his liming, with this aſſiſtance, will form ſuch graſs as has not been of late ſeen in the moors. His firſt flock ſhall be 1000; the purchaſe will be 6*s.* each and fifty guineas for tups.

His hired labour muſt be two men ſervants to go with the team: they muſt be uſed to plough with a pair of horſes and without a driver. I ſhall reckon their board and wages at 55*l.* alſo a ſhepherd at 20*l.* a year.

As the team of five horſes will be brought in at *Michaelmas*, and kept at work conſtantly for ſome time before the farm will yield a produce for them, their expences muſt be calculated: I ſhall ſuppoſe for hay, oats, litter, ſhoeing, *&c.* 10 *l. per* horſe, *per annum* or 50 *l.*

Suppoſe the improvement is begun at *Michaelmas*, the walling ſhould all be finiſhed by *April* or *May:* the team will have nothing to do with this work as the carriage of the ſtones is included in the price *per* rood: it muſt therefore be employed in bringing lime; that it may all be on the premiſes ready to ſpread with the aſhes of the burning, 2 chaldron *per* acre, each of 32 buſhels, is a common quantity, but I ſhall ſuppoſe 3 *per* acre, which over 80 acres is 240 chaldron. The paring and burning muſt always be finiſhed in *April*; it is begun in *March*, and the ſooner over the better, as there is conſequently the more time for the following tillage. From the firſt of *October* to the middle of *March*, are 140 working days, out of which we ought not to deduct above 20 days for accidental interruptions from extreme bad weather, *&c.* there remains 120, which I ſhall, to obviate objections, call 100. Now a waggon brings 3 chaldron at a time, conſequently 80 journeys complete the buſineſs; there are therefore 30 days work of the team to ſpare, which muſt be employed in whatever works may be moſt wanting. It would be very allowable to ſuppoſe it employed that time in carting ſtones for the walling, and the value of the time deducted from the amount of that expence, but as ſome allowances ſhould, in ſuch eſtimates as theſe be made for incidental work, I ſhall let this paſs, without being carried to account.

As faſt as the paring and burning is done, the team muſt cart the lime on to the land, and ſpread it, and then immediately plough both that and the aſhes into the ground. I ſhall ſuppoſe 50 acres ſown with turnips on one ploughing according to the cuſtom of theſe countries; and 30 acres planted with cabbages on two earths. There is one material reaſon for planting a large quantity of cabbages; the turnips throughout theſe countries are none of them hoed:——good turnip hoers conſequently not to be had, ſo that that crop muſt be hand-hoed by the day, a circumſtance, which will render the cabbage culture in theſe caſes of great importance; for the hand-hoeing beſtowed on cabbages, bears no proportion to that of turnips; nor does it depend on any thing but the mere ſtrength of the hoer, being planted at the proper diſtances; whereas, the ſetting out turnips in the hand-hoeing is a matter of ſkill and dexterity much acquired by practice. I have little doubt, but it will in a long courſe of ſeveral year's improvement, be found adviſable to plant all the land with cabbages; but ſuch undertakings ſhould ever come on by degrees, and not all attempted at once. In the enſuing eſtimates, I ſhall vary the quantities according to circumſtances.

One earth on 50 acres, and two on 30, is equal to the ploughing 110 acres once, that is 55 days of two ploughs; there is very good time for this work, for the ſowing and planting will laſt, in proper ſeaſon, from the laſt week in *May* to the end of *July*.

The improver is to make it a rule of conduct always to keep his team employed; the works that do not require the horſes muſt be executed by labourers.

After the turnips and cabbages are in the ground, the team has no more employment that year, except twice horſe-hoeing the cabbages, which is trifling; ſo that other employment muſt be found for them: the beſt method of employing them will be the collecting the ſtones for the buildings, and walls of the next year's incloſure, and laying them where they are to be uſed; by which there will be a deduction from the expence of next year's walling, which may be eſtimated from 30*l.* to 40*l.*

Reſpecting the uſe and value of the crop: the price *per* acre of turnips in the moory parts of the *North Riding* of *Yorkſhire*, which contains vaſt tracts of moors, under the circumſtances I have here delineated, is upon an average about 3*l.* 10*s.* *per* acre, unhoed; conſequently the hoed ones muſt be much more valuable. Cabbages from numerous trials have been found to be worth at leaſt 8*l.* 10*s.* *per* acre on new land: but I ſhall calculate on much lower rates. And the turnip price is not only a *ſuppoſed* one, but what vaſt quantities might be ſold at, to be fed on the ground.

The firſt application of the crop muſt be to the winter feeding the flock of 1000 ſheep; but as they are only to be fed with them in very hard weather and after lambing, a ſmall quantity goes a great way; 50 acres of turnips will be an ample proviſion for them, as I was informed by ſeveral very accurate improvers; however, as in theſe caſes, one had much better be moderate in our ſuppoſitions, I ſhall make a further allowance of 10 acres of cabbages: there will then be 20 of cabbages to ſell; which I ſhall rate at only 5 *l.* *per* acre, to be fed on the land: no objection is to be made on account of any difficulty in ſelling them, becauſe an equality of the turnips may be ſold, and the cabbages reſerved for the flock.

In this manner we get to the end of the firſt year:——we muſt, next place, caſt up the account, and ſee the amount of the diſburſements.

	l.	*s.*	*d.*
The buildings, - -	140	0	0
2 miles and ¾ of walling, at 5 *s.* 6 *d.* a rood. - -	189	15	0
Paring, burning and ſpreading,	80	0	0
240 chald. of lime, at 8 *s.*	96	0	0
Carried forward,	505	15	0

Farming Stock.

	l.	*s.*	*d.*	*l.*	*s.*	*d.*
Brought forward,				505	15	0
1000 ſheep, at 6 *s.*	300	0	0			
5 horſes, -	80	0	0			
Harneſs to ditto,	7	10	0			
1 Waggon, -	20	0	0			
3 ſmall, 3 wheeled carts,	12	0	0			
2 ploughs, - -	7	7	0			
2 pair of harrows,	3	0	0			
Roller, - -	2	10	0			
Sundry ſmall implements,	15	0	0			
				447	7	[illegible]

Labour.

2 men board and wages,	55	0	0			
One ſhepherd ditto,	20	0	0			
Hand-hoeing, 50 acres turnips, at 10 *s.*	25	0	0			
Planting 30 of cabbages, at 5 *s.* -	7	10	0			
Hand-hoeing ditto, at 3 *s.*	4	10	0			
				112	0	0

Sundries.

Maintenance of 5 horſes,	50	0	0			
Wear and tear of one waggons, 3 carts, and ſundry implements,	5	0	0			
Tythe; ſuppoſe the general compoſition of the						
Carried over,	55	0	0	1065	2	0

	l. s. d.	*l. s. d.*
Brought over,	55 0 0	1065 2 0
neighbouring cultivated country, about 2 *s. per* acre, -	8 0 0	
Sundry unſpecified expences, - -	20 0 0	
		83 0 0
Total of the firſt year's diſburſements,		1148 2 0
Product of 1000 ſtock ſheep, lamb and wool, at, 6 *s.*	300 0 0	
Sale of 20 acres cabbages, at 5 *l.*	100 0 0	
		400 0 0
Total firſt year's expence, -		748 2 0

It will certainly be agreed, by all who are acquainted with the prices of the north, that I have rated every article of expence higher than the fact; and the produce I have equally lowered. I make a thouſand ſheep little more than pay the common price of the turnips, though kept three fourths of the year on the moors; for it is no unuſual thing to ſell many hundred acres of turnips from 4 *l.* to 5 *l.* an acre, and unhoed ones: this would on 80 acres alone make the whole produce I have ſuppoſed; whereas, 30 acres being cabbages, raiſes the value much: but as I have often remarked, one ſhould in ſuch eſtimates ever be under the truth in ſuppoſed profit, and above it in ſuppoſed expences. I ſtate nothing in theſe calculations, that I would not undertake to realize upon any ſimilar moors in *England*, at the ſtated expence, and with the ſuppoſed profit.

I did not before obſerve, that the ſheep are to be kept conſtantly folded the year round, the benefit of which, both from manuring, and treading a looſe ſoil, is immenſe. Give to each ſheep a ſquare yard, and in 340 days, 1000 will fold 68 acres. The value of this may be eaſily imagined. I ſhould adviſe a gentleman on no account to keep houſe at the new farm for his men, but to place one of his labourers in it, and have his men board with him, which might very eaſily be managed.—— We now come to the next year's undertaking, which will vary in ſome particulars from the laſt.

I ſhall ſuppoſe 100 acres this year to be added to the former improvement, the eſtate will then lie as follows; Plate V.

Fig. 3. the double lines, the boundaries of the farms.

The buildings are the ſame as before.

The walling extends two miles and three fourths, and one eighth, which comes to 198*l.* 7*s.* 6*d.* and twelve gates complete at 6*s.* 3*l.* 12*s.* but I ſhall call it 4*l.* Paring burning and ſpreading 100*l.*

The reſt of the work depending on the team, we muſt eſtimate the whole amount, to ſee if 5 horſes and 2 men continue ſufficient for all.

	Days.
Bringing lime for 100 acres,	100
Ploughing 50 acres of new incloſure, once for turnips, - -	25
Ditto 50 twice for cabbages,	50
Ditto the laſt 80 acres, thrice for oats,	120
Harrowing and rolling 180 acres,	12
Harveſting 80 acres oats, -	20
Horſe-hoeing 50 acres cabbages,	12
	339

Suppoſing 300 working days in the year, we hence find the old team inſufficient. The addition of one horſe, ſo as to go with three ploughs and 3 pair of harrows, with another ploughman will anſwer the deficiency, and leave a large ſurplus for incidents: and if we work upon the firſt farm with the new addition, will keep the teams regularly employed, ſo as they will not have a great deal to do at one time, and but little at another.

Reſpecting the management of the land, the 80 acres cropped the firſt year with turnips and cabbages, muſt be ploughed up as faſt as the ſheep eat them off; and receiving two earths more, be perfectly flat and ſown with oats: from repeated experience it is found, that oats pay much better than any other grain; the crops are immenſe, without the peculiar benefit from ſheep which theſe enjoy. They frequently amount in common to 7, 8, and even 10 quarters *per* acre; and ſcarcely ever leſs than ſix. I ſhall for moderation ſuppoſe our product to be 7*s.* *per* acre, and the value 12*s.* *per* quarter.

With theſe oats, and at the ſame time, graſs ſeeds muſt be ſown: white clover is ſurprizingly natural upon all the moors, for if you lay a large quantity of lime on a ſmall ſpace of ground, it will kill all the ling, and bring up a full crop of white clover in many places: burnet alſo, and ribgraſs ſhould be ſown, and ſome clean hay ſeeds. I ſhall ſuppoſe the whole 20 *s.* an acre. Of the 100 new acres, 50 of cabbage I ſhall allot to the winter feeding the flock, and 50 of turnips to feeding beaſts, by which means the ſtraw of the oats will be converted to manure. The account of this year will ſtand therefore as follows:

	l.	*s.*	*d.*
The buildings, - -	140	0	0
Walling and gates, -	202	7	6
Paring and burning, -	100	0	0
300 chald. lime, at 8 *s.*	120	0	0
	562	7	6

Stock.

	l.	*s.*	*d.*			
1 horſe, -	16	0	0			
60 oxen, at 6 *l.*	360	0	0			
1 plough, -	3	13	6			
1 pair of harrows, -	2	0	0			
				381	13	

Labour.

3 men, - -	82	10	0			
Shepherd, - -	20	0	0			
Carried over,	102	10	0	944	1	

Hand-

	l.	s.	d.	l.	s.	d.
Brought over,	102	10	0	944	1	0
Hand-hoeing 50 acres of turnips, -	25	0	0			
Planting 50 of cabbages, at 5 *s.* -	12	10	0			
Hand-hoeing ditto 3 *s.*	7	10	0			
Sowing 130 acres,	1	0	0			
Ditto 80 graſs, -	1	0	0			
Mowing and harveſting 80 acres oats (except carting) 2 *s.*	8	0	0			
Threſhing 560 qrs. of oats, at 1 *s.*	28	0	0			
				185	10	0

Seed.

	l.	s.	d.	l.	s.	d.
50 acres turnips, -	2	10	0			
50 cabbages, - -	5	0	0			
80 oats, at 5 buſh. at 14 *s.*	35	0	0			
80 graſſes, - -	80	0	0			
				122	10	0

Sundries.

	l.	s.	d.	l.	s.	d.
Maintenance of 6 horſes,	60	0	0			
Wear and tear of implements, - -	25	0	0			
Tythe, at 2 *s.* -	18	0	0			
To anſwer unſpecified demands, -	50	0	0			
				153	0	0
Total diſburſement, - -				1405	1	0

	l.	s. d.	l.	s. d.
Brought forward,			1405	1 0
Product of 1000 ſheep, at 7 *s.* 6 *d.* -	375	0 0		
60 oxen improved by 50 acres of turnips, with the ſtraw too, -	510	0 0		
560 qrs. oats, at 12 *s.*	336	0 0		
			1221	0 0
Total ſecond year's expence,			184	1 0

The ſtraw of 80 acres of oats, is an object too important in making manure to be omitted: for this purpoſe, the 50 acres of ſpare turnips, I allot to fatting oxen in the farm-yard, that they may eat what they like of the ſtraw, and tread the reſt into rich manure, which being turned over, muſt early next year be mixed with lime, and carried on to the graſs land, an improvement that will be of great utility. It is the cleareſt method in theſe accounts to ſtate the expences of horſes at a certain ſum, rather than to form tedious deductions from the crops. The ſheep are ſuppoſed to pay ſomething better than the firſt year, and that will increaſe from the improvement of the breed. They are ever to be kept folding——as ſoon as the oats are off the ground, they ſhould be brought on to the ſtubble to fold the young graſs.

The third year, I ſhall ſuppoſe 120 acres more improved as before, but it will be uſeleſs to continue dividing into ten-acred fields, for no part of the moors are ſo ſtony as to require above 180 acres in ſuch ſmall pieces. I ſhall therefore vary them in future. The eſtate will this year, conſiſt of the following land. Plate V. Fig. 4.

The buildings the ſame as before.

The walling extends 2 miles and $\frac{1}{4}$ and $\frac{1}{16}$th which comes to 159 *l.* 11 *s.* 3 *d.* and eight gates to 2 *l.* 10 *s.* In all, 162 *l.* 1 *s.* 3 *d.*

Paring, burning, and ſpreading 120 *l.*

Reſpecting the work which depends on the team; the increaſe of it will require an increaſe of that alſo. Two horſes more muſt be bought, in all eight, which will be ſufficient for the work; as will appear from the following ſtate of this year's buſineſs:

	Days.
Bringing lime for 120 acres, 7 chald. at a time in a broad-wheeled waggon, 360 chaldron.	52

	Days.
Ditto, 60 chaldron to mix with the yard dung of laſt year,	9
Carting the lime and dung ſo mixed, 500 loads on to the land, 30 a day, 3 carts,	17
Ploughing 60 acres once,	15
Ditto—— ditto twice,	30
Ditto—— 100 thrice,	75
Harrowing 200,	8
Harveſting 100 oats, 3 waggons,	12
Horſe-hoeing 60 cabbages,	12
Carting, 80 acres of hay,	10
	240

which total leaves a ſurplus ſufficient to anſwer many other trifling matters, that do not require being particularized. The addition to the team requires material additions to the implements: eight horſes demands a broad-wheeled waggon, the uſe of which in the carting of lime, is particularly profitable in ſaving expence. Alſo another narrow-wheeled one, ſo that three may be in the field at hay-time and harveſt; likewiſe ſome carts, *&c.* Another man alſo to plough with the new pair of horſes.

But having extended our improvements to the ſpace of 300 acres, we muſt take in a freſh variation, which is that of draining. It is to be obſerved, that many hundred contiguous acres of moor, may be found without any that is wet; but as I would, in every particular, chuſe to ſuppoſe an improver in no reſpect peculiarly fortunate, I ſhall, even in the calculation of dry moors, ſuppoſe ſome ſpots that require draining—40 acres, for inſtance, in the preſent year's improvement. In wet moors, drains are cut and filled with leſs expence than in moſt ſoils; for the moor digs with much eaſe, and ſtone is every where to be met with to fill them. The breadth and depth of the cuts ſhould be various; in a piece of 40 acres, one main drain may be ſuppoſed, 3 feet wide and 5 deep, and 150 perch long; ſome others 4 feet deep, ſuppoſe 200 perch; and 500, 3 feet deep: the digging and filling the laſt, may be calculated at 4*d.* a perch: the 4 feet ones 6*d.* and the 5 feet 8*d.* In all other reſpects theſe moors are to be treated exactly the ſame as the dry ones; they are when drained equal, and very often ſuperior in fertility.

This

This year's general conduct of the crops is as follows;——the 80 acres laid to graſs laſt year, is now mown for hay, and the after-graſs fed by the horſes and ſheep. The 100 acres laſt year under turnips, are now ſown with oats and graſs ſeeds; and the new broke up, 120 acres are half under cabbages and half turnips. Oxen to be fatted as before, on the ſpare turnips; to convert the ſtraw into manure, and part of the hay into money.

It ſhould here be further obſerved, that I ſuppoſe the firſt improved farm of 80 acres to be kept in the gentleman's hands one year after he certainly might let it: I have two reaſons for this; the firſt is gaining a ſtock of hay, one crop of which, he will now have every year; but before he was forced to buy it. Secondly, the graſs, by gaining a year's age, will fully ſhew itſelf to the tenants, that offer for it, ſo that they will have only to view it to be convinced of its excellency; whereas, if they viewed it upon the oat ſtubble, ſome doubts, cavils, or objections might be ſtarted.

The conſtant regular buſineſs from this time therefore in the gentleman's hands will form an extremely well appointed farm. His new incloſure will be his turnip and cabbage crop. His laſt year's one, will be in oats; and the preceding, in hay; ſo that he will every year have a crop of oats, ſtraw, hay, turnips and cabbages—that is, he will have all the wants within himſelf and every year let a new farm.

The third year's account will ſtand as follows:

	l.	s.	d.
The buildings, - -	140	0	0
Walling, *&c.* - -	162	1	3
Paring and burning, -	120	0	0
420 chaldron lime at 8 *s.*	168	0	0
150 perch drains, at 8 *d.*	5	0	0
200, at 6 *d.* - -	5	0	0
500, at 4 *d.* - -	8	6	8
	608	7	11

Stock.

	l.	s.	d.	l.	s.	d.
2 horſes, -	35	0	0			
100 oxen, -	700	0	0			
1 plough, -	3	13	6			
Pair of harrows, -	2	0	0			
Broad-wheeled waggon,	70	0	0			
Narrow ditto, -	20	0	0			
3 carts, - -	30	0	0			
Harneſs, -	41	0	0			
Sundry new implements,	20	0	0			
				884	13	6
Carried forward,				1493	1	5

Labour.

	l.	*s.*	*d.*	*l.*	*s.*	*d.*
Brought forward,				1493	1	5
4 Men,	100	0	0			
Shepherd,	20	0	0			
Hand-hoeing 60 acres turnips,	30	0	0			
Planting 60 of cabbages, at 5 *s.*	15	0	0			
Hand-hoeing ditto, at 3 *s.*	9	0	0			
Sowing 200 acres,	1	15	0			
Ditto 100 of graſs,	1	10	0			
Mowing and harveſting 100 of oats, at 2 *s.*	10	0	0			
Threſhing 700 quarters oats, at 1 *s.*	35	0	0			
Turning over and mixing 500 loads of compaſt, at 1 *d.*	2	1	8			
Filling and ſpreading ditto, 3 *s.* a ſcore,	3	15	0			
Mowing, making and ſtacking 70 acres of hay, at 7 *s.* 6 *d.*	26	5	0			
				254	6	8

Seed.

	l.	*s.*	*d.*	*l.*	*s.*	*d.*
60 Acres of turnips,	3	0	0			
60 of cabbages,	6	0	0			
100 of oats, 5 buſhels *per* acre, at 14 *s.*	46	17	6			
100 graſſes,	100	0	0			
				155	17	6
Carried over,				1903	5	7

Sundries.

	l.	s.	d.	l.	s.	d.
Brought over, -				1903	5	7
Maintenance of 8 horſes,	80	0	0			
Wear and tear of implements, -	50	0	0			
Tythe, -	30	0	0			
To anſwer unſpecified demands,	50	0	0			
				210	0	0
Total diſburſements, -				2113	5	7
Product of 1000 ſheep, at 10 *s.* -	500	0	0			
100 oxen improved by 70 acres of turnips, 70 of hay, and the ſtraw of 100 to,	1015	0	0			
700 qrs. of oats, at 12 *s.*	420	0	0			
				1935	0	0
Total third year's expence,				178	5	7

Let me here obſerve, that I ſhall not yet further enlarge the annual improvement for the works now employing a team ſufficient for a broad-wheeled waggon; there will be no other than a proportional advantage to the preſent, except in the article of buildings; as the buſineſs is therefore brought into a regular train, I ſhall ſtate the next year's improvement, at no more than the laſt, *viz.* 120 acres. All the preceding articles are calculated as moderately, I think, as they can be: 10*s.* a ſheep profit, on good breed, with plenty of winter food, and good after paſture, is the loweſt one can eſtimate. The improvement of the oxen pays but 3 *l.* an acre for the turnips, although a common price unhoed——not near ſo well limed, and with no ſheep folding, is 4 *l.* and 5 *l.* and nothing is reckoned for the ſtraw; and notwithſtanding the graſs being richly worth 25*s.* an acre. But on the contrary, the expences are laid in every article unuſually high——ſo that there can be no doubt of the moderation of the whole eſtimate.

The firſt improved farm of 80 acres, is now to be let. The rent upon which I ſhall calculate is 20*s.* an acre. I muſt obſerve thereon, that from many trials, in a ſtile far leſs complete, the common improvement of ſuch moors is to 15 *s.* an acre; but before the reader condemns my riſe of 5*s.* let him conſider the following circumſtances:

Firſt, The farmers, and little moor-ſide improvers, who make their incloſures worth 15*s.* take 4, 5, or 6 ſucceſſive crops of corn, and lay to graſs with the laſt; now let the palpable tendency of ſuch bad huſbandry be conſidered; how can the graſs be nearly equal to that which is ſown with the firſt, while the ſoil is in full poſſeſſion of the aſhes, and of the lime? This contraſt is ſo ſtriking that more need not be ſaid on it; if the fields in one caſe are worth 15*s.* they would certainly in any part of *England* be worth 30*s.* in the other; the *worſt* of moor-improvers, who raiſe to 7*s.* 6*d.* in ſuch huſbandry, are equal in their bad management to the 20*s.* in the good.

Secondly, They do not lime ſo richly as 3 chaldron *per* acre at firſt; one, and two, being the common quantity.

Thirdly, The other manuring they get, is contemptible, whereas in the huſbandry here propoſed, each farm receives the fold of 1000 ſheep, and a rich compoſt of lime and yard dung; the two completely and richly manures the whole.

Fourthly, The ſeeds ſown by theſe men for graſſes are, as any one may ſuppoſe, very poor and faulty; ray graſs from its cheapneſs tempts them; or at beſt the ſweeping of a hayloft mixed with it and ſome common red clover; the whole ſo very incomplete, that the loſs on this account muſt be great.

Now,

the preceding articles are calculated as moderately, I think, as they can be: 10*s.* a ſheep profit, on good breed, with plenty of winter food, and good after paſture, is the loweſt one can eſtimate. The improvement of the oxen pays but 3 *l.* an acre for the turnips, although a common price unhoed——not near ſo well limed, and with no ſheep folding, is 4 *l.* and 5 *l.* and nothing is reckoned for the ſtraw; and notwithſtanding the graſs being richly worth 25*s.* an acre. But on the contrary, the expences are laid in every article unuſually high———ſo that there can be no doubt of the moderation of the whole eſtimate.

The firſt improved farm of 80 acres, is now to be let. The rent upon which I ſhall calculate is 20*s.* an acre. I muſt obſerve thereon, that from many trials, in a ſtile far leſs complete, the common improvement of ſuch moors is to 15 *s.* an acre; but before the reader condemns my riſe of 5*s.* let him conſider the following circumſtances:

Firſt, The farmers, and little moor-ſide improvers, who make their incloſures worth 15*s.* take 4, 5, or 6 ſucceſſive crops of corn, and lay to graſs with the laſt; now let the palpable tendency of ſuch bad huſbandry be conſidered ; how can the graſs be nearly equal to that which is ſown with the firſt, while the ſoil is in full poſſeſſion of the aſhes, and of the lime? This contraſt is ſo ſtriking that more need not be ſaid on it; if the fields in one caſe are worth 15 *s.* they would certainly in any part of *England* be worth 30 *s.* in the other; the *worſt* of moor-improvers, who raiſe to 7 *s.* 6 *d.* in ſuch huſbandry, are equal in their bad management to the 20 *s.* in the good.

Secondly, They do not lime ſo richly as 3 chaldron *per* acre at firſt; one, and two, being the common quantity.

Thirdly, The other manuring they get, is contemptible, whereas in the huſbandry here propoſed, each farm receives the fold of 1000 ſheep, and a rich compoſt of lime and yard dung; the two completely and richly manures the whole.

Fourthly, The ſeeds ſown by theſe men for graſſes are, as any one may ſuppoſe, very poor and faulty; ray graſs from its cheapneſs tempts them; or at beſt the ſweeping of a hayloft mixed with it and ſome common red clover; the whole ſo very incomplete, that the loſs on this account muſt be great.

Now, gentlemen, if, with ſuch a train of management, the very loweſt improvement of moors is to 7 *s.* 6 *d.* and riſing to 15 *s.* and even to 20 *s.* in ſmall parcels, can I be thought guilty of exaggeration in calculating the graſs conducted on a perfect ſyſtem at 20 *s.*? Is it not extremely clear, that I am therein much under the mark?

But further;—another very great advantage enjoyed by the farms in queſtion, is the complete order in which they are delivered into the hands of a tenant, in all other reſpects. The dwelling houſes, and all the offices, new built and perfect of their kind, farm yards to each, in a very different ſtile from what is common in the north. All the incloſures new walled and in excellent repair: what have the farmers, who raiſe to 10 *s.* and 15 *s.* *per* acre, to ſhow againſt theſe? who can diſpute the benefit of ſuch circumſtances demanding a conſideration in rent?

Upon the whole, 20 *s.* *per* acre is the rent on which I ſhall calculate; under the firm perſuaſion of being much below the truth.

When I bring the product of the improvement into the account, it muſt for the ſake of perſpicuity be called one ſum of money; 80 *l.* a year is 2000 *l.* becauſe it can be mortgaged for that ſum, at an hour's warning *.—I now proceed to the fourth year. Plate V. Fig. 5.

The buildings as before.

The walling 2 miles and $\frac{1}{4}$ and $\frac{1}{16}$ as before, which with 8 gates come to 162 *l.* 1 *s.* 3 *d.*

Paring and burning, 120 *l.*

Draining, I ſhall ſuppoſe, may come to 40 *l.*——The reſt of the work depends on the team, which we found before would be ſufficient for all the employments of this year.

The ſtate of the improvement is as follows: The 120 acres now taken in, half in turnips and half in cabbages. The 120 acres taken in laſt year under oats. The 100 acres taken in the year before in graſs, for hay. And the firſt 80 acres let in a farm.——The account as follows:

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* Some perſons may perhaps doubt this, becauſe the farms are *new* ones: but a farm of graſs that is let on leaſe, not to a gentleman or a friend, but to a common tenant, is to all intents and purpoſes a freehold that any man will advance money on: but to anſwer ſuch objections when made, let a ſale be ſuppoſed inſtead of a mortgage 30 years purchaſe, is 5 years below the average, and will through all theſe calculations amount to much more than I have ever ſuppoſed to be borrowed.

Buildings

	l.	s.	d.
Buildings, - -	140	0	0
Walling, *&c.* - -	162	1	3
Paring and burning, -	120	0	0
Draining, - -	40	0	0
450 chaldron of lime, at 8 *s.*	180	0	0
100 oxen, - -	700	0	0
	1342	1	3

Labour.

	l.	s.	d.			
4 Men, -	100	0	0			
Shepherd, -	20	0	0			
Hand-hoeing, 60 acres turnips, -	30	0	0			
Planting 60 of cabbages, at 5 *s.* -	15	0	0			
Hand-hoeing ditto, at 3 *s.*	9	0	0			
Sowing 180 acres,	1	15	0			
Ditto 120 graſs, -	2	0	0			
Mowing and harveſting 120 acres oats, 2 *s.*	12	0	0			
Threſhing 840 qrs. oats, 1 *s.*	42	0	0			
Turning over and mixing 1000 loads compoſt,	4	3	4			
Filling and ſpreading ditto, at 3 *s.* a ſcore,	7	10	0			
Mowing, making and ſtacking 85 acres, 7 *s.* 6 *d.*	31	17	6			
Sundry labour,	20	0	0	295	5	10
Carried forward,				1637	7	1

Seed.

	l.	*s.*	*d.*	*l.*	*s.*	*d.*
Brought over,				1637	7	1
60 Acres turnips, - -	3	0	0			
60 of cabbages, -	6	0	0			
120 of oats, -	56	5	0			
120 graſſes, -	120	0	0			
				185	5	0
Sundries, as laſt year with 4 *l.* addition to tythe, -				214	0	0
Total diſburſement, - £.				2036	12	1
Product of 1000 ſheep,	500	0	0			
100 oxen improved by 70 acres of turnips and cabbages, 85 of hay and 120 of ſtraw to, -	1037	10	0			
840 quarters, at 12 *s.*	504	0	0			
				2041	10	0
Diſburſement, - -				2036	12	1
Balance in hand, - -				4	17	11

Here a new ſcene opens upon us, for as the product of one year in this regular conduct of the buſineſs now equals the expenditure of another, we can calculate the whole ſum requiſite for the general improvement.

	l.	s.	d.	l.	s.	d.
Diſburſements of the firſt year, - -				1148	2	0
Ditto of the ſecond,	1405	1	0			
Product of the firſt,	400	0	0			
				1005	1	0
Diſburſements of the third, -	2113	5	7			
Product of the ſecond,	1221	0	0			
				892	5	7
Diſburſements of the fourth,	2036	12	1			
Product of the third,	1935	0	0			
				101	12	1
Total ſum requiſite for the improvement, - - £.				3147	0	8

General account at the end of the fourth year.

	l.	s.	d.	l.	s.	d.
Product of the fourth year in hand,				2041	10	0
Value of firſt farm of 80 acres,				2000	0	0
Ditto of the ſecond of 100 acres now let, - -				2500	0	0
				6541	10	0
Original ſum firſt borrowed, -	3147	0	8			
Four years intereſt,	503	10	4			
				3650	11	0
Clear profit, - - £.				2890	19	0

This profit is caſh in hand, to proceed with the undertaking, and excluſive of 240 acres of improved land unlet; and the whole ſtock live and dead on the land.

Before I proceed with the account, I muſt here make a pauſe, to remove thoſe objections which will ariſe againſt the whole affair from men ſo much aſtoniſhed at the greatneſs of the profit as to diſbelieve it, were it only on that account, upon the principle, that he who proves too much, proves nothing.

The quantity of the moors are every where immenſe in the waſte parts of the north of *England*, and in *Scotland*; ſo that no objection can be raiſed for want of land to work upon, that yields *no* rent. All the operations of improvement are commonly practiſed in theſe countries, and their effect extremely well known, ſo that I have offered nothing ideal: the prices I allow for every work that requires many men in a ſhort time, are exceſſively high—higher than any where known. In reſpect to the nature of the ſoil itſelf, I have very fairly deſcribed it. That it is highly improvable, is by all allowed, but ſays one ſet of men, the expences are too great. I

think,

think, I have proved clearly, that this is a miſtake; but ſo material a point by no means depends on my opinion alone: I viewed in ſeveral parts of the north, improvements of the very worſt ſort of moors, as was evident from only looking over the walls that parted the incloſures from the waſtes; and the graſs of ſuch improvement let with the utmoſt readineſs, from 7*s*. 6*d*. to 12*s*. an acre; notwithſtanding the whole management of them being ſo prepoſterous. A few gentlemen of particular ſpirit, have undertaken improvements, and all with great ſucceſs; they have all advanced the land from 12*s*. to 15*s*. an acre, even the worſt. But here I muſt remark, that even theſe few gentlemen, who are ſo marked by their ſpirit, have formed improvements in a very languiſhing manner, compared to the plan which I have recommended. They all execute their works by degrees: a houſe is built this year in the midſt of a waſte—a barn the next—ſome walling the third. *One* incloſure taken in and cultivated the fourth; and ſo on: thus, in twenty years, they gain a farm. They allot a certain ſum of money every year out of the ſavings of their income, to perform, in this cautious manner, what ought to be done at once. Improvements are made and profitably in this manner, but it is abſolutely impoſſible they ſhould be a tenth ſo advantageous, as if a farm is completed every year; and for many reaſons: by being done *in large* every part of the work is proportioned: a team of 4 horſes is employed, and never to be idle; this decides the quantity of walling, of paring and burning, of liming, *&c.* But ſuppoſe a gentleman fixes 4 horſes on a moor, and he finds that the proportioning his work in this manner will take too much money, in ſuch caſe but half the requiſite improvement will be done, all proportions will at once be broke, the team will wait for every one,—the building will wait for the walling—the walling for the paring, and all will at once languiſh. To remedy this, only two horſes will perhaps be ſet at work, then will a man be employed with a paltry cart to fetch lime, at 40 *per cent.* loſs, at leaſt, for want of a waggon and 2 horſes more. Workmen of all ſorts will find only a little ſpirit of employment once a year, and conſequently make you wait the motions of thoſe, whoſe buſineſs is more important. But when every work is properly proportioned to each other; one part aſſiſts the other, and every part conſequently gains: the exact ſeaſon is always taken——you have a command of men of all ſorts——your work is cheaper, and at the ſame time better done.

One material point in my propoſition, is an improved flock of ſheep for folding; but the graſs which I ſaw in various parts that had been taken from the moors had never known a fold ſince the day it was created.

Upon the whole, the advantages of proceeding with a due ſpirit in the affair of improving moors, are clear and deciſive: the profit muſt inevitably be vaſtly greater, than from an annual moderate expenditure. Let a narrow-wheeled waggon and 4 horſes, and two men be fixed on as the very firſt criterion of the extent of the improvement; and all other things proportioned to it. The improver will then find (under the given circumſtances of the moors now under conſideration) that he muſt take in a farm of not leſs than 80 acres of land every year: and put 3147 *l.* in his pocket, the firſt day of his undertaking.

In anſwer to this, I have been more than once told, *I cannot ſpare the money*, and this from men of large eſtates: Who the deuce ſuppoſes they can ſpare three thouſand pounds on demand? But cannot they borrow it? Cannot they ſpare 4 *per cent.* for that ſum, while it brings them in 40? I have ſeen ſo much of the languor of thoſe undertakings that depend on a ſmall annual ſum, that I declare, if a nobleman was on that plan, to offer me 20 *per cent.* on an improvement propoſed, for executing it; and 5 *per cent.* on the ſame advance; but executed with the whole ſum ready; the latter is the offer I ſhould prefer. It is ſomewhat paradoxical what objection the moſt prudent landlord can have to borrowing a ſum of money for an improvement in huſbandry.——It is ſo extremely common for all other purpoſes, that no good reaſon can be given for this particular exception. However, the improvements that are attempted with annual ſums, unleſs they amount to an equality with the ſums ſketched above, can never turn out half ſo profitable. It is for theſe reaſons, that I value my new-improved graſs at 20 *s.* an acre; the languid improvements riſing to 15*s.* would juſtify my ſtating a much higher rent, but I am deſirous of being moderate in ſuch articles.

Objections ought never to be raiſed againſt a ſpirited conduct in matters of this ſort, becauſe uncommon: moors *have not* been improved in ſo ſhort a time, therefore ſome will think they *cannot*, but there is no reaſon in ſuch concluſions. No man has attempted the improvement of moors, with moderate ſums of money, that has failed: a general ſucceſs has attended ſuch undertakings. And ſome have made conſiderable fortunes by them.

I ſhall now proceed with the calculation, and ſuppoſe 120 acres to be taken in every year; the fifth year, the eſtate will conſiſt of the following fields. Plate V. Fig. 6.

	l.	*s.*	*d.*
Buildings, walling, paring burning, draining, and lime, as in the laſt year,	642	1	3
100 oxen ditto, -	700	0	0
Labour ditto, with addition of 20 acres of hay, -	302	15	10
Seed ditto, -	185	5	0
Sundries, ditto -	214	0	0
£.	2044	2	1

	l.	s.	d.
Product of 1000 ſheep,	500	0	0
100 oxen improved by 70 acres of turnips and cabbages; 105 of hay and 120 of ſtraw; to,	1067	10	0
840 qrs. of oats, at 12 *s.*	504	0	0
	2071	10	0
Diſburſement, -	2044	2	1
Balance, - -	27	7	11

General account at the end of the fifth Year.

Caſh in hand at the end of the fourth year, -	2890	19	0
Expenditure of the fifth,	2044	2	1
Balance in hand, -	846	16	11
Amount of a new farm of 120 acres, let at 120 *l.* a year, - -	3000	0	0
Product of the fifth year,	2071	10	0
Caſh in hand at the end of the fifth year; which is clear profit, - £.	5918	6	11

Here you muſt allow me to remark, that as long as the improver continues his works, it is at a profit of 3000 *l.* a year, and all from the original ſum of 3147*l.* for he will every year, upon this plan, let a farm of 120 *l.* a year, which is a perpetual fund for borrowing 3000 *l.* a year: and this, amazing as it may ſeem, is only a different way of ſtating the point: for the annual acquiſition of 120 *l.* a year *income*, is certainly 3000 *l.* a year *principal.* But it is even more, for if he *ſold* the eſtates as faſt as improved, they would raiſe even larger ſums; for inſtance, at only 30 years purchaſe, 3600 *l.*

But being now arrived at near 6000 *l.* in hand, clear, we muſt ſuppoſe the improvement increaſed: I ſhall ſtate two farms taken in every year, each of 120 acres: it would render it more profitable to make but one of them, but as 120 may be eaſier let than 240, I ſhall calculate accordingly.

The ſixth year's eſtate will therefore be the following: Plate VI. Fig. 1.

Fig. 2.

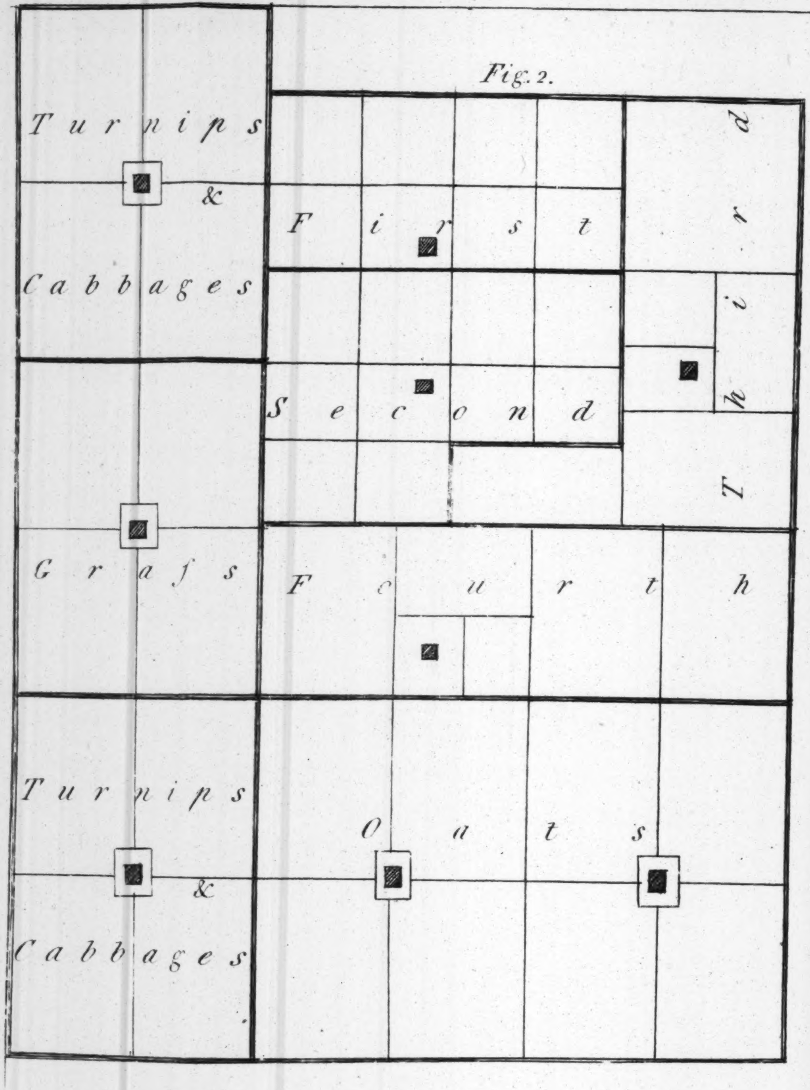
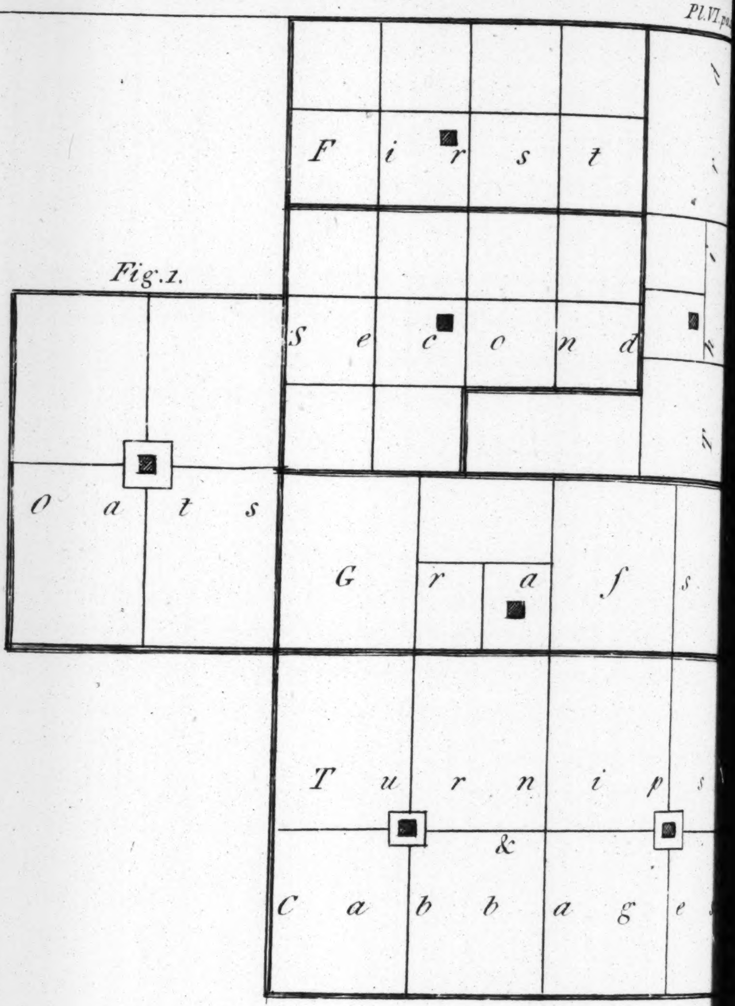


Fig. 1.



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And the account this,

	l.	s.	d.
Buildings, - - -	280	0	0
Walling and gates, -	324	2	6
Paring and burning, -	240	0	0
Draining, - -	80	0	0
Lime, - -	360	0	0
	1284	2	6

Stock.

	l.			
200 Oxen, -	1400			
8 horſes, - -	128			
1 broad-wheeled waggon,	70			
2 narrow ditto, -	50			
6 carts, -	60			
Ploughs, harrows, rollers, &c.	50			
Harneſs, - -	30			
		1788	0	0

Labour.

	l.	s.	d.			
A bailiff, -	80	0	0			
8 men, -	200	0	0			
Shepherd, -	20	0	0			
Hand-hoeing 120 acres turnips,	60	0	0			
Planting 120 of cabbages, at 5 *s.*	30	0	0			
Hand-hoeing ditto, at 3 *s.* -	18	0	0			
Sowing 360 acres,	3	0	0			
Ditto 120 graſs,	2	0	0			
Carried over,	413	0	0	3072	0	0

	l.	s.	d.	l.	s.	d.
Carried over,	413	0	0	3072	2	6
Mowing and harveſting 120 acres oats, at 2 *s.*	24	0	0			
Threſhing 840 quarters, at 1 *s.* -	42	0	0			
Turning over, mixing, filling and ſpreading 1000 loads compoſt,	11	13	4			
Mowing, making, and ſtacking 90 acres hay, at 7 *s.* 6 *d.* -	33	15	0			
Sundry labour,	30	0	0			
				554	8	4
Seed.						
120 Of turnips,	6	0	0			
120 cabbages,	12	0	0			
120 oats, -	56	5	0			
120 graſs,	120	0	0			
				194	5	0
Sundries.						
Maintenance of 16 horſes, -	160	0	0			
Wear and tear,	80	0	0			
Tythe,	50	0	0			
To anſwer unſpecified demands,	100	0	0			
				490	0	0
Total diſburſement, -				4310	15	10
Product of 1000 ſheep, 200 oxen improved by 190 acres of turnips	500	0	0			
Carried forward,	500	0	0	4310	15	10

	l.	s.	d.	l.	s.	d.
Brought forward,	500	0	0	4310	15	10
and cabbages; 90 of hay, and 120 ſtraw; to,	2105	0	0			
840 qrs. oats, at 12 s.	504	0	0			
				3109	0	0
Total expence,				1201	15	10

General account at the end of the ſixth year.

	l.	s.	d.
Caſh in hand at the end of the fifth year, - - - -	5918	6	11
Diſburſement of the ſixth, -	4310	15	10
Remains, - -	1607	11	1
Amount of a new farm, of 120 l. a year, - - - -	3000	0	0
Product of the ſixth year, -	3109	0	0
Caſh in hand at the end of the ſixth year, - - - -	7716	11	1

In the preceding account, I have charged many expences higher than ordinary, and inſerted ſome new ones; ſuch as 80 *l.* a year to a bailiff, which, in this extent of buſineſs, though not abſolutely neceſſary, may yet be allowed. I have charged the expence of the horſes the ſame as uſual; though at the ſame time I have ſuppoſed 90 acres of hay mown inſtead of 120. I have allowed 30 *l.* for unſpecified labour, and 100 *l.* to anſwer incidental demands: I have likewiſe continued to charge 20 *s.* an acre for paring and burning, though 16 *s.* 6 *d.* is the price. Theſe and other articles amount together to a conſiderable ſum, and are abundantly ſufficient to anſwer minute objections.

The ſeventh year will be as follows: Plate VI. Fig. 2.

And the account as under;

Buildings, walling, paring, draining and lime as in the laſt year,				1284	2	6
200 oxen, - -				1400	0	0
Labour.						
Bailiff, men, and ſhepherd, -	300	0	0			
Labour on turnips and cabbages as laſt year,	108	0	0			
Sowing, -	5	0	0			
Mowing and harveſting 240 acres oats,	48	0	0			
Threſhing 1680 qrs. at 1 *s.* -	84	0	0			
Turning over, mixing, filling and ſpreading 2000 loads compoſt,	23	6	8			
90 acres hay, -	33	15	0			
Sundries, -	30	0	0			
				632	1	8
Carried over,				3316	4	2

Seed.

	l.	*s.*	*d.*	*l.*	*s.*	*d.*
Brought over, -				3316	4	2
120 Turnips, -	6	0	0			
120 cabbages, -	12	0	0			
240 oats, -	112	10	0			
240 graſs, -	240	0	0			
				370	10	0
Sundries, as in laſt year, -				490	0	0
Total diſburſement, -				4176	14	2
Product of 1000 ſheep,	500	0	0			
200 oxen improved by 190 acres of turnips and cabbages; 90 of hay, and 240 of ſtraw; to -	2105	0	0			
1680 qrs. of oats, at 12 *s.* -	1008	0	0			
				3613	0	0
Total expence, £.				563	14	2

General account at the end of the ſeventh year.

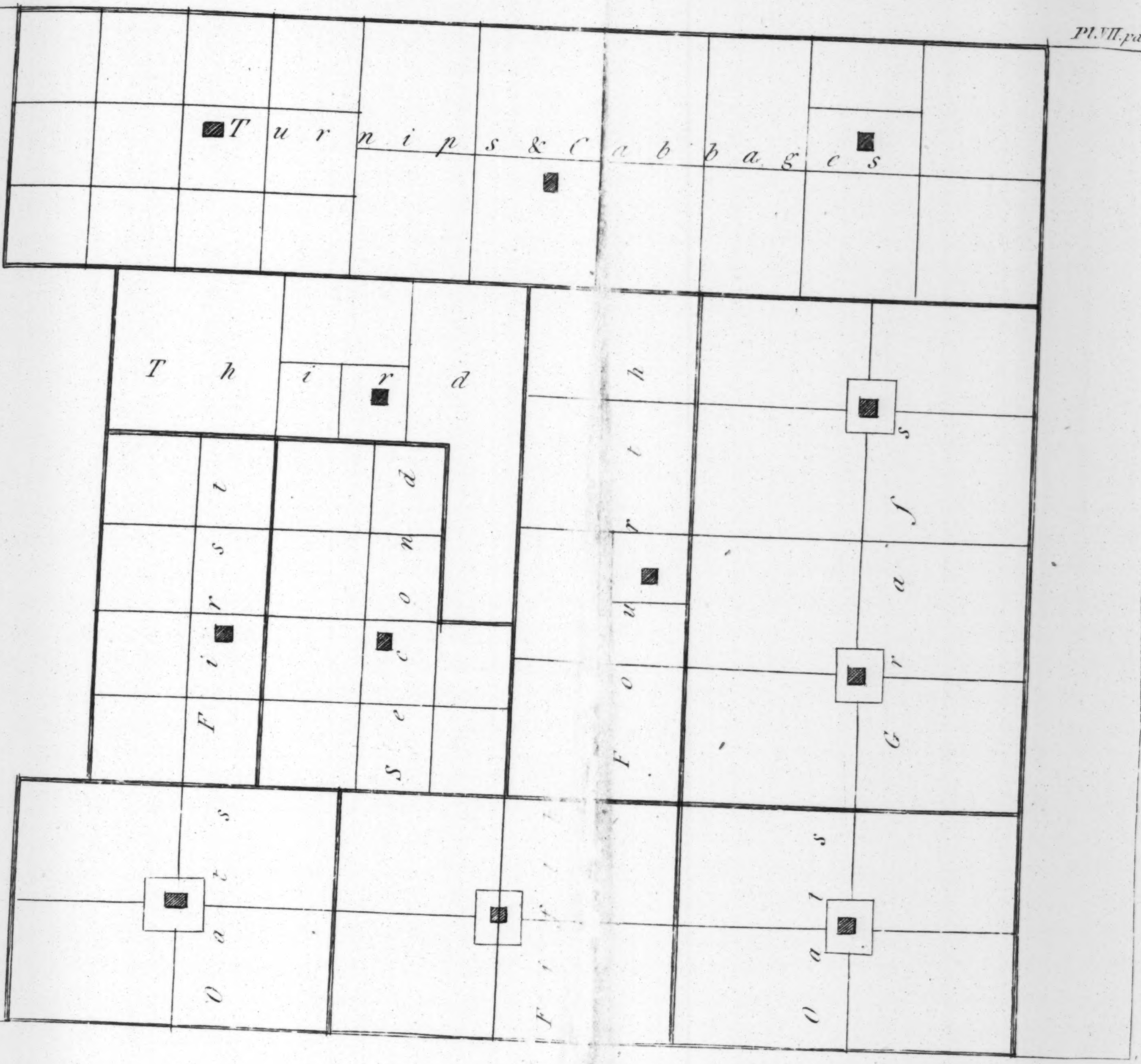
Caſh in hand at the end of the ſixth year, - -	7716	11	1
Diſburſement of the ſeventh, -	4176	14	2
Remains - - -	3539	16	11
Raiſed on a new farm of 120 *l.* a year the fifth that is let,	3000	0	0
Product of the ſeventh year,	3613	0	0
Caſh in hand at the end of the ſeventh year, - £.	10,152	16	11

It is here to be obſerved, that the gentleman might now take 5000 *l.* from th improving fund, and apply to whateve uſes he thought proper: this would o courſe depend on his neceſſities, but I ſhal here ſuppoſe (for the ſake of diſcoverin what may be done from a ſmall beginnin which is an important object) him to increaſe his improvements as faſt as his improving fund will allow; for this purpoſ we poſſeſs the data that are requiſite; *viz* 16 horſes by 8 men, are ſufficient for annual improvement of 240 acres; and alſ the proportion of 8 horſes and 4 men, fo 120. I ſhall therefore ſuppoſe 360 acre broke up the eighth year, to be formed i the following incloſures. Plate VII.

The farms being in number three, th buildings will be the ſame proportioned before.

The walling extends 7 miles $\frac{3}{4}$ and conſequently comes to 567 *l.* 4 *s.* 4 *d.* T paring and burning, and lime, will be the former proportion. Draining, I ſha call 200 *l.* to the three farms; which up moors in general dry, is an ample allowance.

Pl. VII. pa. 176.


Turnips & Cabbages
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In the regular progreſſive method of increaſing improvements here pointed out, there can enſue no difficulty for want of men: a very great number may not always be *at once* at command; but any perſon who has conſtant employment, that keeps 100 this year, may undoubtedly have 150 next year, 200 the next, and ſo on:——keep them but regularly, and you may every year increaſe to any number; but make a break of a ſingle year, and then much difficulty will be found to regain half the number.

The following is the account of this year:

	l.	*s.*	*d.*
Buildings; three ſets, -	420	0	0
Walling, &c. - -	567	4	4
Paring and burning, - -	360	0	0
Draining, - - -	200	0	0
1080 chaldron lime, at 8 *s.*	432	0	0
500 ditto. - -	200	0	0
	2179	4	4

Stock.

	l.	*s.*	*d.*			
300 Oxen, at 7 *l.* -	2100	0	0			
8 horſes, - -	128	0	0			
Carried forward,	2228	0	0	2179	4	4

	l.	s.	d.	l.	s. d.
Brought forward,	2228	0	0	2179	4 4
1 broad-wheeled waggon,	70	0	0		
2 narrow ditto,	50	0	0		
6 carts, - -	60	0	0		
Ploughs, harrows, rollers, harneſs, &c.	80	0	0		
				2488	0 0
Labour.					
Bailiff, - -	80	0	0		
12 men, -	300	0	0		
Shepherd, -	20	0	0		
Hand-hoeing, 180 acres turnips, - -	90	0	0		
Planting 180 ditto of cabbages,	45	0	0		
Hoeing ditto, 3 *s.*	27	0	0		
Sowing 420 acres,	5	0	0		
Ditto 240 of graſs,	4	0	0		
Mowing and harveſting 240 of oats, 2 *s.*	48	0	0		
Threſhing 1680 qrs. oats, at 1 *s.* -	84	0	0		
Mixing, filling, and ſpreading 3000 loads compoſt, -	35	0	0		
200 acres of hay, at 7 *s.* 6 *d.* -	75	0	0		
Sundry labour, -	50	0	0		
				863	0 0
Seed.					
180 turnips,	9	0	0		
180 cabbages, -	18	0	0		
Carried forward,	27	0	0	5530	4 4

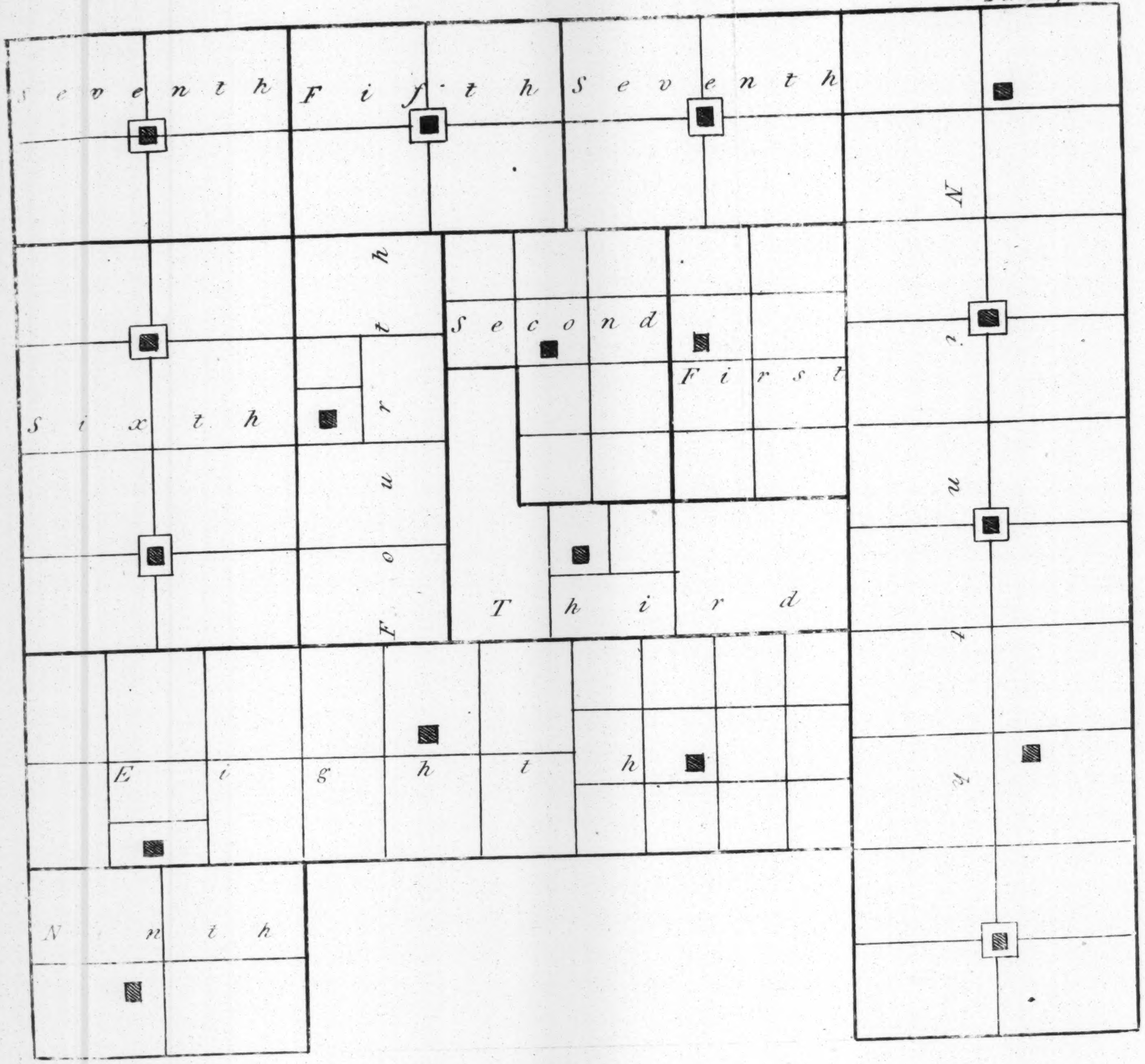
	l.	s.	d.	l.	s.	d.
Brought forward,	27	0	0	5530	4	4
240 oats, - -	112	10	0			
240 graſſes, -	240	0	0			
				379	10	0
Sundries.						
Maintenance of 24 horſes,	240	0	0			
Wear and tear, -	200	0	0			
Tythe, -	80	0	0			
To anſwer unſpecified demands, -	150	0	0			
				670	0	0
Total diſburſement, -				6579	14	4
Product 1000 ſheep,	500	0	0			
300 oxen improved by 310 acres of turnips and cabbages, 200 of hay, and 240 of ſtraw, to, -	3330	0	0			
1680 qrs. oats, at 12*s.*	1008	0	0			
				4838	0	0
Total expence,				1741	14	4

In this account, as before, I have increaſed many charges beyond the former proportion, to anſwer incidental expences: a method which obviates all objections of the inferior ſort; for they amount to ſeveral hundred pounds. The exceſs in paring and burning is continued; the allowance for draining is very great; and alſo the quantity of lime. Reſpecting the implements, the number of waggons, *&c.* purchaſed, may to ſome appear very great, but it ſhould be conſidered, as an univerſal rule in huſbandry of all ſorts, that the teams are at any time *all* to be ſet to one ſort of work; which is a matter of prodigious importance when *ſeaſons* are to be catched. Thus, there muſt always be one broad-wheeled waggon to every 8 horſes, with two narrow ditto, and 4 or five carts; and a plough, and a pair of harrows to every pair of horſes. Hence, all the teams may be ſet to lime cart, or all to ploughing, or all to harrowing; by which means the farmer will always be able to make the moſt of a ſeaſon when he has it.

General State at the End of the Eighth Year.

	l.	*s.*	*d.*
Caſh in hand at the end of the ſeventh year,	10,152	16	11
Diſburſements of the eighth,	6579	14	4
Remains, - -	3573	2	7

Pl. VIII. pa. 181



	l.	*s.*	*d.*
Brought forward,	3573	2	7
Raiſed on two new farms of 240 *l.* a year, the ſixth let,	6000	0	0
Product of the 8th year,	4838	0	0
Caſh in hand at the end of the 8th year, -	14,411	2	7

Which ſum of money will allow of breaking up ſix farms in the ninth year, each, as before, of 120 acres. The eſtate that year, will lie as in Plate VIII.

And the account as under,	*l.*	*s.*	*d.*
Buildings, - - -	840	0	0
Walling, *&c.* -	1134	8	8
Paring and burning, -	720	0	0
Draining, - -	400	0	0
3160 chaldron of lime,	1264	0	0
	4358	8	8

Stock.

600 Oxen, -	4200	0	0			
16 horſes, -	256	0	0			
2 broad-wheeled waggons,	140	0	0			
Carried forward,	4596	0	0	4358	8	8

	l.	s.	d.	l.	s.	d.
Brought forward,	4596	0	0	4358	8	8
4 narrow, ditto, -	100	0	0			
12 carts, -	120	0	0			
Ploughs, &c. &c. -	160	0	0			
				4976	0	0
				9334	8	8

Labour.

	l.	s.	d.	l.	s.	d.
Bailiff, -	100	0	0			
20 men, -	500	0	0			
Shepherd, -	20	0	0			
Hand-hoeing 360 acres turnips, - -	180	0	0			
Planting 360 of cabbages,	90	0	0			
Hoeing ditto, -	54	0	0			
Sowing 720 acres, -	10	0	0			
Ditto 360 graſs, -	8	0	0			
Mowing and harveſting 300 oats, -	36	0	0			
Threſhing 2520 qrs. oats, at 1 *s.* - -	126	0	0			
6000 loads compoſt, -	70	0	0			
200 acres hay, -	75	0	0			
Sundry labour, -	200	0	0			
				1489	0	0

Seed.

	l.	s.	d.	l.	s.	d.
360 Turnips, -	18	0	0			
360 cabbages, -	36	0	0			
360 oats, -	168	15	0			
360 graſſes, -	360	0	0			
				582	15	0
Carried forward,				11406	3	8

Sundries.

	l.	s.	d.	l.	s.	d.
Brought forward, -				11406	3	8
Maintenance of 40 horſes,	400	0	0			
Wear and tear, -	500	0	0			
Tythe, -	150	0	0			
To anſwer unſpecified demands, -	300	0	0			
				1350	0	0
Total diſburſement,				12756	3	8
Product of ſheep, -	500	0	0			
600 oxen improved by 670 acres of turnips and cabbages; 200 of hay and 360 ſtraw, to, - -	6510	0	0			
2520 qrs. of oats, at 12*s.*	1512	0	0			
				8522	0	0
Expence, -				4234	3	8

General State at the End of the Ninth Year.

Caſh in hand at the end of the eighth year, - -	14,411	2	7
Diſburſements of the ninth,	12,756	3	8
Remains, - -	1,654	18	11
Raiſed on two new farms each of 120 *l.* a year, the ſeventh let,	6,000	0	0
Product of the ninth year, -	8,522	0	0
Caſh in hand at the end of the ninth year, -	16,176	18	11

The tenth year I ſhall finiſh the increaſe of land, by incloſing only two farms each of 120 acres; which, and running a plantation around two ſides of the eſtate which now forms a ſquare of two miles each ſide, in the following manner. Plate IX. Theſe two farms, I ſhall, for winding up the buſineſs the ſooner, ſuppoſe them ſown after the paring and burning, on three ploughings with the graſs ſeeds, omitting the turnips and cabbages and oats: This is a conduct, which I by no means adviſe to be practiſed in common, becauſe it will (notwithſtanding the goodneſs of the graſs in this management) be attended with loſs. But it is proper, at the concluſion of an improvement, that every thing may finiſh together.

I ſhall ſuppoſe the plantation incloſed like the reſt, with a wall, and alſo pared, burnt and limed in the ſame manner, then ploughed three times, and planted with firs and pines, &c. three to every ſquare perch, which is very thick, but in bleak countries you cannot plant too thick, on account of warmth and ſhelter. The plantation to be 20 perch wide; and being 4 miles long, will contain 160 acres; or 25,600 ſquare perches, conſequently, there will be want-

ing

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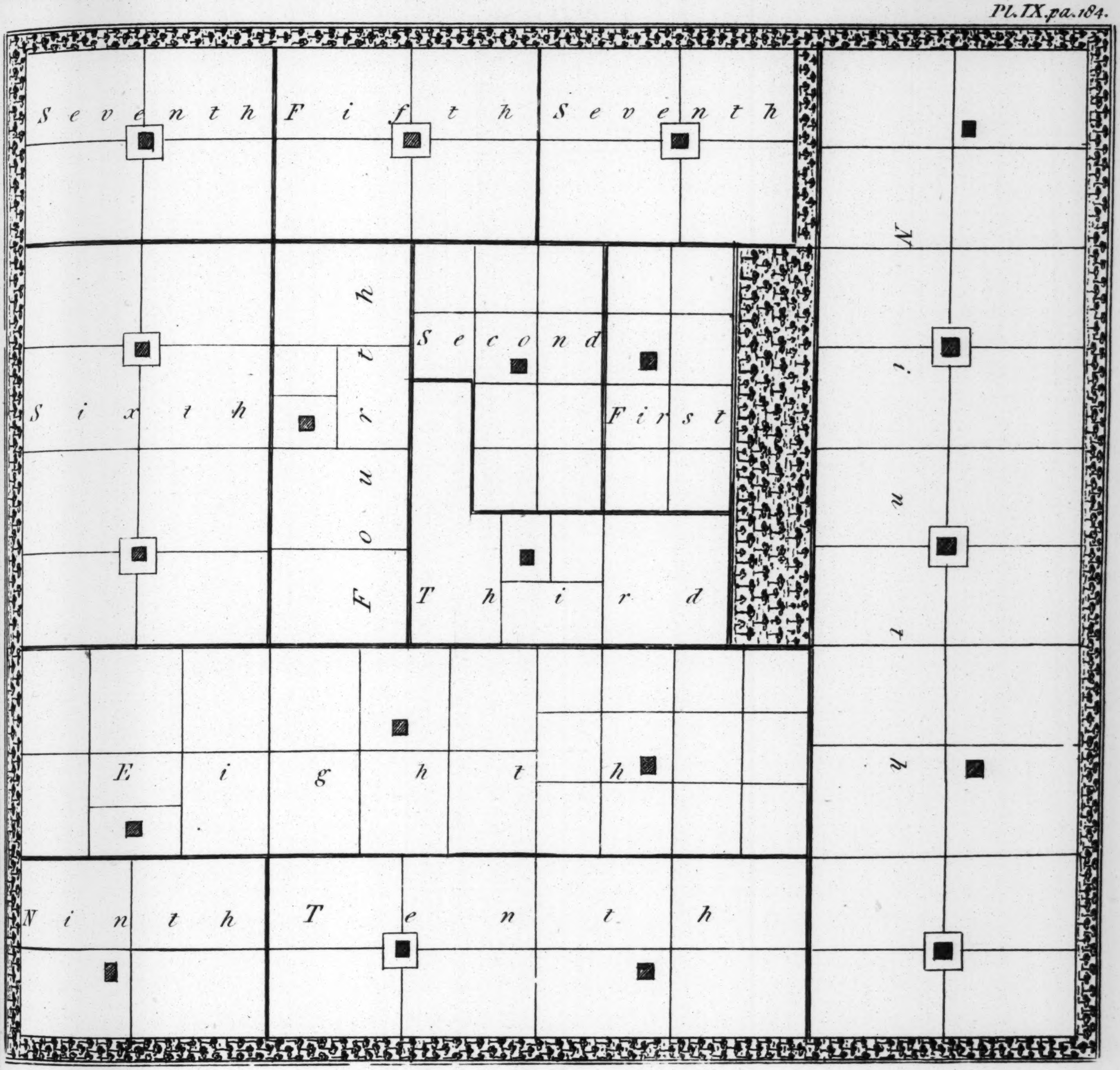
ing


Seventh
Fifth
Seventh
Sixth
Fourth
Second
First
Third
Ninth
Eighth
Ninth
Tenth

ing 76,800 trees, which, at 20*s.* a thouſand, will be 77*l.* but I ſhall call it 100*l.* and allow 50*l.* for planting and charges.

The accounts of this year as under:

				l.	*s.*	*d.*
Buildings,				280	0	0
Walling, farms and planting,				550	0	0
Paring and burning 400 acres,				400	0	0
Draining,				100	0	0
Lime, 1200 chaldron, 8 *s.*				480	0	0
Planting,				150	0	0
				1960	0	0
Labour.						
Bailiff,	100	0	0			
15 men,	375	0	0			
Shepherd,	20	0	0			
Sowing 720 acres,	10	0	0			
Ditto 960 with graſſes,	20	0	0			
Mowing and harveſting 720 oats,	72	0	0			
Threſhing, 5040 qrs. oats, at 1 *s.*	252	0	0			
300 acres hay,	112	10	0			
Sundry labour,	100	0	0			
				1061	10	0
Seed.						
720 Oats,	337	10	0			
960 graſſes,	960	0	0			
				1297	10	0
Carried forward,				4310	0	0

Sundries.

	l.	*s.*	*d.*	*l.*	*s.*	*d.*
Brought forward,	4319	0	0			
Maintenance of 40 horſes, -	400	0	0			
Wear and tear,	300	0	0			
Tythe, -	150	0	0			
To anſwer unſpecified demands, -	200	0	0			
				1050	0	0
Total diſburſement,				5369	0	0
Product 1000 ſheep,	500	0	0			
5040 qrs. oats, at 12 *s.*	3024	0	0			
300 acres hay, -	450	0	0			
				3974	0	0
Expences, -				1395	0	0

General State at the End of the Tenth Year.

Caſh in hand at the end of ninth year, - -	16,176	18	11
Diſburſements of the tenth,	5,369	0	0
Remains, - -	10,807	18	11
Raiſed on three new farms each of 120 *l.* a year, the 8th let,	9000	0	0
Product of the tenth year,	3974	0	0
Caſh in hand, at the end of the tenth year, - -	23,781	18	11

All works of tillage ceaſe with the tenth year. It is requiſite to keep the two laſt improvements in hand one year longer, on account of mowing the graſs of them once: but as the teams will for that work be wanting, but at one ſeaſon; they muſt be kept in the graſs alone without corn, and the labour of the hay executed by labourers. The account of the eleventh year as follows:

	l.	*s.*	*d.*	*l.*	*s.*	*d.*
Bailiff, -	100	0	0			
Shepherd, - -	20	0	0			
Mowing, making, cocking, carting and ſtacking 900 acres of hay, at 10 *s.*	450	0	0			
				570	0	0
Tythe, - - -				96	0	0
Unſpecified demands, -				50	0	0
				716	0	0
Product 1000 ſheep, -				500	0	0
900 acres hay, - -				1350	0	0
				1850	0	0
Expences, - -				716	0	0
Balance, - -				1134	0	0

General Account at the End of the Eleventh Year.

Caſh in hand at the end of the tenth year, -	23,781	18	11
Diſburſements, the eleventh year,	716	0	0
Remains, - - -	23,065	18	11
Raiſed on eight new farms, each 120 *l.* a year, -	24,000	0	0
Product of the eleventh year,	1850	0	0
	48,915	18	11

Sale of Stock.

1000 Sheep, at 15 *s.*	750	0	0			
40 horſes, at 5 *l.*	200	0	0			
All the implements, coſt 1262 *l.* as moſt of them are nearly as good as new, as well from the ſhort time of uſe, as the good repair they have been kept in, I ſhall ſuppoſe, ſold for - -	500	0	0			
				1450	0	0
Caſh in hand, at the end of the eleventh year, -				50,365	18	11
Raiſed upon the farms at various times, - -				58,500	0	0
The above total, -				50,365	18	11
All the mortgages paid off, there remains a debt of, -				8,134	1	1

The eſtate conſiſts of the following farms:

Firſt year,	1 of	80 acres,
Second,	——	100 Ditto
Third,	——	120 Ditto
Fourth,	——	120 Ditto
Fifth,	——	120 Ditto
Sixth,	2 —	120 Ditto 120 Ditto
Seventh,	2 —	120 Ditto 120 Ditto
Eighth,	3 —	120 Ditto 120 Ditto 120 Ditto
Ninth,	8 —	120 Ditto 120 Ditto 120 Ditto 120 Ditto 120 Ditto 120 Ditto 120 Ditto 120 Ditto

2340 acres rent,	£. 2340
Valued or ſold at 30 years purchaſe, exclusive of 160 acres of plantation, the amount is, -	*l.* 70,200
Deduct the remaining mortgage,	8,134
Remains neat profit on the improvement,	62,066

From this ſhould be deducted the original value of the land:——but theſe uninclosed waſtes have no value, unleſs let to tenants; then they will ſell for 50 years purchaſe. But ſcarcely any of the uninclosed yield a farthing an acre rent——the value of the 160 acres incloſed and well planted, which is not reckoned in this account, will much more than balance this matter.

Sixty two thouſand pounds made in eleven years, is nearly at the rate of 6000*l.* profit *per annum*. It is all the product of the original 3147 *l.* But this matter is ſo very unuſual——ſo much beyond the ideas of thoſe men who judge of poſſibilities, only from paſt experience, that ſomething further muſt be ſaid to it——defenſive, if not explanatory; and this I ſhall reſerve for the ſubject of my next letter.

LETTER VI.

IN my laſt letter, I have endeavoured to prove the truth of the data upon which I calculated: moſt of them are indiſputable facts, and the reſt perfectly conſiſtent with thoſe collateral truths acknowledged by the moſt doubtful.

The grand point which is the nature of the ſoil and the profit of improving it at all is conſidered in two lights: one is the poſſibility of improving it; and the other, the profit of it. The firſt is acknowledged by all thoſe gentlemen, and farmers that are moſt ſtrenous in denying the latter: they allow to a man, that the moors which I have deſcribed, are capable of being made excellent graſs land: indeed it would be ſtrange, if they denied what might in moſt parts be proved by a few hours ride: they therefore confine themſelves principally to the unprofitableneſs of the buſineſs; the buying gold too dear.

Relative to all the articles of the preceding expences, I will poſitively aſſure the reader, that they are in no reſpect matter of opinion; but actual facts, which I gained in various excurſions on the moors from gentlemen, common farmers, and little improvers. The prices are known to the whole *North Riding* of *York*, which contains amazing tracts of theſe moors; and there is ſcarcely one article, but what I have increaſed, that I might be ſure not to be under the mark; witneſs my calculating, paring and burning at 20*s.* an acre, though 16*s.* 6*d.* is the price. Likewiſe my ſuppoſing the improvement to be 6 miles from lime, a circumſtance of vaſt expence, and which not one tract in twenty labours under. In all other articles of expence, I have been equally liberal.

The rating the improved graſs, at 20*s.* *per* acre, I before particularly explained; by ſhewing that the ſame moors in common, and very execrable management, were advanced to 12*s.* and 15*s.* and ſome to 20*s.* without a tenth of the advantages my farms enjoy; a contraſt, which I am confident muſt ſtrike every one, and force the moſt dubious to allow, that if *ſuch* management can bring an advance to 12 *s.* or 15 *s.* the conduct here propoſed is very moderately eſtimated at 20 *s.*——Nor is the rent of thoſe badly improved moors too high; I viewed many ſuch fields, and think them well worth the money: Were I to live in that country, I would readily give 15 *s.* an acre for them: and I faithfully aſſure the reader, that I would in the like circumſtances agree to give 20 *s.* an acre for ſuch graſs as my propoſed methods would form.

In anſwer to theſe aſſertions, it may be rationally aſked, *If what you ſay is true, how come the landlords and farmers of this ſtrange country to be ſo blind to their intereſt? To be able to make above* 60,000 *l. in* 11 *years, from ſo ſmall a ſum as* 3000 *l. is ſo enormous a profit, that it muſt ſtrike every one.* This may ſeem a puzzling queſtion, and I will anſwer it ſatisfactorily, when I am ſatisfactorily anſwered ſome queſtions of my own. *How comes many farmers in the north, to keep from* 5 *to* 40,000 *ſheep, and yet never fold them? It is a fact that ſuch farmers loſe from* 500 *l. to* 2000 *l. a year in this manner.—How likewiſe comes it that ſuch farmers retain their old wretched breed of ſheep, when a* *ſmall expence in tups for improvement would add ſome thouſand pounds a year to their profit?* Who will give me a good juſtification of the conduct of ſuch farmers; or even of their landlords? when we ſee and know ſuch inſtances of barbariſm—acknowledged ſuch, not only by a few ſpeculative gentlemen, but by all the huſbandmen and ſtock breeders that travel through thoſe countries—can we be ſurprized at ſeeing moors unimproved, however great the profit?

A man who has been habituated from his infancy to ſee thouſands of acres around him in a ſtate of nature, and always reputed barren and worthleſs, comes at laſt to believe them actually as reputed, without ever taking the trouble to examine the matter. None of his anceſtors, however ſenſible, ever thought of improving theſe deſarts, why therefore ſhould he? ——None of thoſe farmer's anceſtors ever folded ſheep, or improved the breed, why therefore ſhould they? Cuſtom is ſufficient to unravel many of theſe perplexities.

It is not to be wondered at, that little landholders who can ſcarcely live, ſhould not improve their moors. The aſtoniſhing thing is the remiſſneſs of rich ones; men, who poſſeſs even ready money for twenty ſuch undertakings as I have ſketched; men, who would make a bet of three thouſand pounds, forty times in a year; yet will not they make a bet with their moors; tho' more chances than ever *Demoivre* calculated are in their favour.

Where would the poſſeſſor of moors find ſo ready a way of raiſing a very large ſum of money for any purpoſe? The man who has three daughters, 4, 5 and 6 years old, may portion each with 20,000 *l.* by the time they are 15, 16 and 17 years old; and that without injuring or burthening a penny the eſtate he received from his anceſtors. To what courſe can he take? what ſeat in parliament? what favour at court? what plan of life will enſure him above two thouſand pounds a year in eleven years, with a beginning only of 3147 *l.*? Men fly from this beautiful, this free, this healthy kingdom, to ſeek fortunes in the enſlaved, unwholſome Indies, leſs than they might acquire at home with pleaſure; and, comparatively ſpeaking, without difficulty or hazard. Where can a country gentleman find a profeſſion or a trade ſo proper for his younger ſons as this branch of agriculture? where will the young man with 3000 *l.* turn to diſpoſe of it to one tenth the advantage? I defy any perſon to ſketch a line of trade, in which he can with equal probability make a like fortune in the ſame time. We find, from the preceding calculations, that 3000 *l.* is an important ſum ſo employed, but what is it in trade?—a nothing; unleſs in the hands of a frugal lad, that never knew an idea beyond two and two make four.

I ſhould here likewiſe remark, that theſe eſtimates are equally applicable to the man who hires moors, as to him who poſſeſſes them; for any quantity may be had on leaſes for 99 years, if improvement is engaged for.——And as to the rent, improving the eſtate would be reckoned rent ſufficient; however, if a ſhilling an acre, or 1 *s.* 6 *d.* the variation on that account would be very ſmall.

Here let me alſo obſerve, that I find this ſubject of improving moors demands the greater attention, on account of the ſtrange neglect of former writers. Not one that I have yet met with, gives the leaſt attention to them. I turned over *Blythe*, fully expecting ſomething in him, but was diſappointed; he particularizes nothing concerning them; and Mr. *Mills*, who in his *New Syſtem of Huſbandry* quotes numerous authors in general, yet, when he comes to this ſubject, he confines himſelf to bogs, which is another branch of agriculture. The ſubject is therefore actually new. All hitherto written on this moſt important part of huſbandry, might be contained in two pages.

For the ſatisfaction of thoſe who may be determined to think that 20 *s.* an acre is too high a rent for the improved farms: I ſhall here vary it to 12 *s.* which may be done in a very ſmall compaſs.

In the preceding calculation, the requiſite ſum of 3147 *l.* is diſcovered at the end of the fourth year: The general account muſt then be varied; Inſtead of 4500 *l.* raiſed on 2 farms of 180 acres, the ſum of 2500 *l.* muſt be ſubſtituted, which thoſe farms will pay the intereſt of, let at 12 *s.* Nor muſt the original ſum be paid off. The account at the end of the fourth year, will then be as follows:

Product of the fourth,		£. 2441
Raiſed on two farms 80 and 100 acres,		2500
		£. 4941
Deduct 4 years intereſt on 3147,		503
		£. 4438
Expenditure of the fifth year,	2044	
Intereſt of 3147,	125	
		2169
Remains,		£. 2269
Raiſed on a farm of 120 acres,		1800
Product of the fifth year,		2071
Caſh in hand,		£. 6140
Diſburſement of ſixth,	4310	
Intereſt of 3147,	125	
		4435
Remains,		1705
Raiſed on 120 acres,		1800
Product of ſixth year,		3109
Caſh in hand,		£. 6614
Diſburſement of ſeventh,	4176	
Intereſt,	125	
		4301
Remains,		£. 2313
Raiſed on 120 acres,		1800
Product of ſeventh year,		3613
Caſh in hand, (carried over,)		£. 7726

Brought over,		£. 7726
Diſburſement of the eighth,	6579	
Intereſt,	125	
		6704
Remains,		£. 1022
Raiſed on 240 acres,		3600
Product of the eighth year,		4838
Caſh in hand,		9460
In the ninth year, a variation is neceſſary, 6 farms of 120 acres were broke up, the expenditure above 12,000 *l.* for this reaſon, I ſuppoſe only 4 new ones. The total diſburſement of the ninth year, will then be,	8510	
Intereſt,	125	
		8635
Remains,		825
Raiſed on 240 acres,		3600
Product of the 9th year, *varied as before*,		6379
Caſh in hand,		10,804
Diſburſement of the 10th year, varied according to that of the 9th,	4717	
Intereſt,	125	
		4842
Remains,		5962
Raiſed on 360 acres,		5400
Product of the 10th year, varied as above,		2966
Caſh in hand, (carried forward,)		14,328

Brought over,		£. 14,328
Diſburſement of the 11th year, *varied* as above,	596	
Intereſt,	125	
		721
Remains,		13,607
Raiſed on 6 farms,		10,800
Product of the 11th year, varied as before,		1,490
		25,897
Sale of ſtock, varied as above,		1,300
		27,197
Original ſum,		3,147
Remains,		24,050
Raiſed on the farms at various times,		31,300
Deduct the above amount,		24,050
All the mortgages paid off, there remains a debt of,		7,250

The eſtate conſiſts of 2100 acres rent, at 12 *s.* 1200 *l.*

Valued or ſold at 30 years purchaſe, excluſive of 160 acres of plantation, the amount is,	37,800
Deduct the remaining mortgage,	7,250
Remains neat profit on the improvement,	30,550

I ſhould here obſerve, that I adhere to the firſt calculation, which is the double of this in profit; the grounds I went upon are ſo clear to me, that I have not a doubt concerning them: The ſecond eſtimate I offer for the uſe of thoſe, who agreeing to ſome of my data, reject the valuation of 20*s.* an acre. To ſuch, I reply, that granting their objection to be juſt.——— Granting ſuch excellent huſbandry as I have ſtated, and allowed the expence of.——— Granting that ſuch uncommon advantages as are enjoyed by theſe farms.—Granting, that all this reduces the rent of the land below the improvements effected by execrable huſbandry——yet even in ſuch caſe, the profit in eleven years on the diſburſement of 3147 *l.* amounts to above THIRTY THOUSAND pounds clear.

If this is not anſwering ſuch objections ſatisfactorily, I confeſs it totally beyond my comprehenſion and my power.

LETTER VII.

I SHALL, in the next place, lay before you an eſtimate upon a larger ſcale, that ſuch landlords as can ſpare a more conſiderable ſum than 3147 *l.* may apply it to the beſt advantage, by beginning his improvement upon a ſcale proportioned to his money: the data upon which I ſhall form this calculation, are the ſame as the preceding: I ſhall not be ſo particular in my explanations, as moſt of the circumſtances which require ſuch minute attention, are already touched upon in the laſt calculation.

Firſt Year.

I ſhall ſuppoſe the work begun by forming two farms; 200 acres together, to lie as in the firſt plate of Letter V. the corner completed by two more incloſures. The expence will be as follows:

Buildings,

	l.	*s.*	*d.*
Buildings, - - -	280	0	0
Walling 6 miles and gates, -	420	0	0
Paring and burning, - -	200	0	0
600 chaldron lime, at 8 *s.*	240	0	0
	1140	0	0

Stock.

	l.	*s.*	*d.*			
1000 ſheep, -	300	0	0			
8 horſes, - -	128	0	0			
Broad wheeled waggon,	70	0	0			
2 narrow, ditto, - -	40	0	0			
5 carts, - -	50	0	0			
4 ploughs; 4 pair of harrows; rollers; harneſs, *&c.* -	40	0	0			
				628	0	0
Stock to eat 150 acres of turnips and cabbages, ſuppoſe 5 *l.* *per* acre, - - -				750	0	0
				2518	0	0

Labour.

A bailiff, - -	50	0	0			
4 men, - -	100	0	0			
1 ſhepherd, - -	20	0	0			
Hoeing 100 acres turnips,	50	0	0			
Planting and hoeing 100 of cabbages at 8 *s.*	40	0	0			
Sundries, - -	30	0	0			
				290	0	0
Carried forward,				2808	0	0

		l. s. d.
Brought over,		2808 0 0

Seed.

	l. s. d.	
100 turnips,	5 0 0	
100 cabbages,	10 0 0	
		15 0 0

Sundries.

8 horſes,	80 0 0	
Wear and tear,	20 0 0	
Tythe,	20 0 0	
Sundries,	50 0 0	
		170 0 0
Total diſburſement,		2993 0 0

Product.

1000 ſheep, at 6 *s.*	300 0 0	
Improvement of ſtock, by 150 acres of turnips, *&c.*	1200 0 0	
		1500 0 0
Expence,		1493 0 0

Second Year.

This year I ſhall ſuppoſe, 300 acres added to the eſtate in three farms. One farm in 8 incloſures, and two in 6. The extent is 6 miles and $\frac{1}{4}$.

Buildings,

				l.	s.	d.
Buildings, - - -				420	0	0
Walling, - - -				445	16	8
Lime 1000 chaldrons, - -				400	0	0
Paring and burning, - -				300	0	0
Suppoſe draining, - - -				200	0	0
				1765	16	8

Stock.

For 250 acres turnips, *&c.* - -	1250	0	0			
4 horſes, - -	64	0	0			
2 narrow wheeled waggons,	40	0	0			
Carts, ploughs, *&c.* -	60	0	0			
				1414	0	0
				3179	16	8

Labour.

Bailiff, - - - -	80	0	0			
6 men, - -	150	0	0			
Shepherd, - -	20	0	0			
Hoeing 150 acres turnips,	75	0	0			
Planting and hoeing 150 cabbages, - -	60	0	0			
Sowing 350 acres, -	4	0	0			
200 Ditto graſſes, -	5	0	0			
Mowing and harveſting 200 oats, - -	20	0	0			
Threſhing 1400 qrs. at 1*s.*	70	0	0			
3000 loads of compoſt,	24	0	0			
Sundries, - -	50	0	0			
				558	0	0
Carried over,				3737	16	8

	l.	s.	d.	l.	s.	d.
Brought over, -				3737	16	8
Seed.						
150 Turnips, - -	7	10	0			
150 cabbages, - -	15	0	0			
200 oats, - -	94	0	0			
200 graſſes, - -	200	0	0			
				316	10	0
Sundries.						
12 horſes, - -	120	0	0			
Wear and tear,	100	0	0			
Tythe, - -	50	0	0			
Unſpecified demands,	100	0	0			
				370	0	0
Diſburſement, - -				4424	6	8
Product 1000 ſheep, 7*s.* 6*d.* -	375	0	0			
Improvement of ſtock by 250 turnips, &*c.*	2000	0	0			
1400 qrs. oats, at 12*s.*	840	0	0			
				3215	0	0
Expence, -				1209	6	8

Third Year.

This year four farms, each of 100 acres, to be broken up; the incloſures of two to be three in number. Of one to be 4, and of one to be 8. The walling is 7 miles.

Buildings,

	l.	s.	d.
Buildings, - - -	560	0	0
Walling, - - - -	523	0	0
Paring and burning, - -	400	0	0
Liming, 1700 chaldron, - -	680	0	0
Draining, - - -	200	0	0
	2363	0	0

Stock.

For 350 acres of turnips, *&c.* -	1750	0	0			
12 horſes, - -	192	0	0			
2 broad wheeled waggons,	140	0	0			
4 narrow ditto, -	80	0	0			
Carts, plough, *&c.*	300	0	0			
				2462	0	0

Labour.

	l.	s.	d.			
Bailiff, - -	100	0	0			
Shepherd, - -	20	0	0			
12 men, -	300	0	0			
Hoeing 200 acres turnips,	100	0	0			
200 cabbages, -	80	0	0			
Sowing 500 acres, -	7	0	0			
Ditto 300 graſſes, -	7	10	0			
Mowing and harveſting 300 of oats, 2 *s.* -	30	0	0			
Threſhing 2100 quarters at 1 *s.* -	105	0	0			
3000 loads of compoſt,	36	0	0			
Carried over,	785	10	0	4825	0	0

	l.	*s.*	*d.*	*l.*	*s.*	*d.*
Brought over,	785	10	0	4825	0	0
Mowing, making and ſtacking 200 acres hay, 7 *s.* 6 *d.*	75	0	0			
Sundries, - -	100	0	0			
				960	10	0

Seed.

	l.	*s.*	*d.*	*l.*	*s.*	*d.*
200 Turnips, - -	10	0	0			
200 cabbages, - -	20	0	0			
300 oats, - -	141	0	0			
300 graſſes, - -	300	0	0			
				471	0	0

Sundries.

	l.	*s.*	*d.*	*l.*	*s.*	*d.*
24 Horſes, - -	240	0	0			
Wear and tear, -	150	0	0			
Tythe, - -	90	0	0			
Unſpecified demands,	100	0	0			
				580	0	0
Diſburſement, -				6836	10	0
Product of 1000 ſheep,	500	0	0			
Improvement of ſtock by 350 acres of turnips and 200 hay, -	3100	0	0			
2100 qrs. of oats, at 12 *s.*	1260	0	0			
				4860	0	0
Expence, -				1976	10	0

General Account at the End of the Third Year.

	l.	*s.*	*d.*	*l.*	*s.*	*d.*
Diſburſement of the firſt year,				2993	0	0
Diſburſement of the ſecond year,	4424	6	8			
Product of the firſt,	1500	0	0			
				2924	6	8
Diſburſement of the third,	6856	10	0			
Product of the ſecond,	3215	0	0			
				3641	10	0
Total ſum requiſite for this improvement,				9558	16	8
Product of the third year,				4860	0	0
Raiſed on two farms of 200*l.* a year,				5000	0	0
Caſh in hand at the end of the third year,				9860	0	0

Fourth Year.

This year I ſhall ſuppoſe five farms, each of 100 acres, to be added to the improvements. Each of them of ſix fields. The walling will extend ten miles and an half.

	l.	s.	d.
Buildings, - - -	700	0	0
Walling, - - -	833	0	0
Paving and burning, - - -	500	0	0
Liming 2000 chaldron, - -	800	0	0
Draining, - - -	300	0	0
	3133	0	0

Stock.

	l.	s.	d.			
For 450 acres of turnips, *&c.* - - - -	2250	0	0			
Eight horſes, - -	128	0	0			
One broad-wheeled waggon,	70	0	0			
Two narrow ditto, -	40	0	0			
Carts, ploughs, *&c.* -	200	0	0			
				2688	0	0

Labour.

Bailiff, - -	100	0	0			
Shepherd, - - - -	20	0	0			
Sixteen men, - -	400	0	0			
Hoeing 250 acres turnips,	125	0	0			
Planting and hoeing 250 of cabbages, - -	100	0	0			
Sowing 650 acres and 400 graſs, - - -	20	0	0			
Mowing and harveſting 400 acres of oats, -	40	0	0			
Threſhing 2800 quarters, at 1 *s.*	140	0	0			
4000 loads of compoſt,	48	0	0			
Carried over,	993	0	0	5821	0	0

	l.	*s.*	*d.*	*l.*	*s.*	*d.*
Brought over,	993	0	0	5821	0	0
Mowing, making, and ſtacking 300 acres hay,	112	10	0			
Sundries, - -	100	0	0			
				1205	10	0
Seed.						
250 Turnips, - - -	12	10	0			
250 cabbages, - -	25	0	0			
400 oats, - - -	188	0	0			
400 grapes, - -	400	0	0			
				625	10	0
Sundries.						
32 horſes, - -	320	0	0			
Wear and tear, -	250	0	0			
Tythe, - - -	110	0	0			
Unſpecified demands, -	100	0	0			
				780	0	0
Diſburſement, - - -				8432	0	0
Product 1000 ſheep, -	500	0	0			
Improvement of ſtock by 450 acres of turnips, &c. and 300 of hay,	4050	0	0			
2800 quarters of oats,	1680	0	0			
				6230	0	0
Expence, - - - -				2202	0	0

General Account at the End of the Fourth Year.

	l.	s.	d.
Caſh in hand at the end of the third year, - - - -	9860	0	0
Diſburſement of the fourth, -	8432	0	0
Remains, - - -	1428	0	0
Raiſed on three farms of 300*l.* a year,	7500	0	0
Product of the fourth year, -	6230	0	0
Caſh in hand at the end of fourth year,	15,158	0	0

Fifth Year.

I ſuppoſe five farms, each of 160 acres, taken in this year; in the whole 800 acres. Four of them divided into nine incloſures, and one into ſixteen, make ſeventeen miles of walling.

	l.	s.	d.
Buildings, - - -	700	0	0
Walling, - - -	1190	0	0
Paring and burning, - -	800	0	0
Lime 3000 chaldron, - -	1200	0	0
Draining, - - -	500	0	0
	4390	0	0

Stock.

	l.	s.	d.	l.	s.	d.
For 750 acres of turnips, *&c.* - -	3750	0	0			
Carried over,	3750	0	0	4390	0	0

	l.	s.	d.	l.	s.	d.
Brought over,	3750	0	0	4390	0	0
Sixteen horſes, -	256	0	0			
Two broad-wheeled waggons. Four narrow ditto, with ploughs, carts, *&c. &c.* -	500	0	0			
				4506	0	0

Labour.

	l.	s.	d.	l.	s.	d.
Bailiff, ſhepherd, and 24 men, - - -	720	0	0			
Hoeing 400 acres turnips,	200	0	0			
Planting and howing 400 of cabbages, -	160	0	0			
Sowing 900, and 500 of graſſes, - -	35	0	0			
500 acres of oats -	50	0	0			
Threſhing 3500 quarters,	175	0	0			
5000 loads of compoſt, -	60	0	0			
400 acres of hay, -	150	0	0			
Sundries, - -	200	0	0			
				1750	0	0

Seed.

	l.	s.	d.	l.	s.	d.
400 turnips, - -	20	0	0			
400 cabbages, - -	40	0	0			
500 oats, - - -	235	0	0			
500 graſſes - -	500	0	0			
				795	0	0
Carried over,				11441	0	0

Sundries:

	l.	s.	d.	l.	s.	d.
Brought over,				11441	0	0
48 horſes, - -	480	0	0			
Wear and tear -	400	0	0			
Tythe, - -	160	0	0			
Unſpecified demands, -	150	0	0			
				1190	0	0
Diſburſements, - - -				12,631	0	0
Product 1000 ſheep, -	500	0	0			
Improvement of ſtock by 750 acres of turnips, *&c.* and 400 of hay,	6600	0	0			
3500 quarters of oats,	2100	0	0			
				9200	0	0
Expence, - - -				3,431	0	0

General Account at the End of the Fifth Year.

	l.	s.	d.
Caſh in hand at the end of the fourth, - -	15,158	0	0
Diſburſement of the fifth, -	12,931	0	0
Remains, - - -	2,527	0	0
Raiſed on four farms, 400*l.* a year,	10,000	0	0
Product of the fifth year, -	9,200	0	0
Caſh in hand at the end of the fifth year, - - -	21,727	0	0

Sixth

Sixth Year.

Twelve hundred and eighty acres added this year, in eight farms. Six, each of nine fields. One of ſixteen, and one of twelve. The walling twenty-ſix miles.

	l.	s.	d.
Buildings, - -	1120	0	0
Walling, - - -	1820	0	0
Paring and burning, - -	1280	0	0
Lime 4500 chaldron, - -	1800	0	0
Draining, - - -	600	0	0
Walling 40 acres into 25 diviſions, and building a cottage in each, -	965	0	0
	7585	0	0

Stock.

	l.	s.	d.	l.	s.	d.
For 1230 acres of turnips and cabbages,	6150	0	0			
Forty-eight horſes, -	768	0	0			
Six broad-wheeled waggons, - -	420	0	0			
Twelve narrowed ditto,	240	0	0			
Twelve carts, - -	120	0	0			
Twenty-four ploughs,	90	18	0			
Twenty-four pair of harrows, - -	48	0	0			
Rollers, - -	20	0	0			
Harneſs, - -	96	0	0			
Sundry implements, -	50	0	0			
				8002	18	0
Carried over,				15587	18	0

Labour.

	l.	s.	d.	l.	s.	d.
Brought over,				15587	18	0
Bailiff, - -	100	0	0			
Three others, -	90	0	0			
Shepherd, - -	20	0	0			
Forty-eight men, -	1200	0	0			
Hoeing 640 acres of turnips, - -	320	0	0			
Planting and hoeing 640 cabbages, -	256	0	0			
Sowing 1440 acres, and 800 graſſes, -	45	0	0			
Mowing and harveſting 800 oats -	80	0	0			
Threſhing 5600 qrs.	280	0	0			
10,000 loads compoſt,	120	0	0			
500 hay, - -	187	10	0			
Sundries, - -	100	0	0			
				2798	10	0

Seed.

	l.	s.	d.	l.	s.	d.
640 turnips, - -	32	0	0			
640 cabbages, -	64	0	0			
800 oats, - -	376	0	0			
800 Graſſes, - -	800	0	0			
				1272	0	0

Sundries.

	l.	s.	d.	l.	s.	d.
96 Horſes, - -	960	0	0			
Wear and tear, -	500	0	0			
Tythe - -	240	0	0			
Unſpecified demands,	200	0	0			
				1900	0	0
Diſburſement, - - -				21558	8	0

	l.	s.	d.	l.	s.	d.
Brought over,				21558	8	0
Product 1000 ſheep,	500	0	0			
Improvement of ſtock by 1230 acres of turnips, &c. and 500 hay, - - -	10,590	0	0			
5600 quarters of oats,	3,360	0	0			
				14450	0	0
Expence, - - -				7108	8	0

General Account at the End of the Sixth Year.

Caſh in hand at the end of the fifth year, - - -	21,727	0	0
Diſburſement of the ſixth, -	21,558	8	0
Remains, - - - - -	168	12	0
Raiſed on 500*l.* a year, -	12,500	0	0
Product of the ſixth year, -	14,450	0	0
Caſh in hand at the end of the ſixth year, - - -	27,118	12	0

Seventh Year.

I ſhall ſuppoſe 1710 acres broken up this year; ſix farms of 160 acres each, in nine fields: and five farms, each of 150 acres; two in twelve fields, one in eight, one in ſix, and one in four. The walling juſt thirty miles.

	l	s.	d.
Buildings, - - - - -	1540	0	0
Walling, - - - - -	2100	0	0
Paring and burning, - -	1710	0	0
Liming, 6000 chaldron, - -	2400	0	0
Draining, - - -	500	0	0
	8250	0	0

Stock.

	l.	s.	d.			
For 1660 acres of turnips, &c. -	8300	0	0			
Eight horſes, -	128	0	0			
Waggons and implements, - - -	200	0	0			
				8628	0	0

Labour.

Bailiffs, and ſhepherd,	210	0	0			
Fifty-two men, -	1300	0	0			
Hoeing 855 acres of turnips, - -	427	10	0			
Planting and hoeing 855 cabbages, - -	342	0	0			
Sowing, - - - -	60	0	0			
Mowing, &c. 1280 acres of oats, - - -	128	0	0			
Threſhing 8960 quarters of oats, - -	448	0	0			
Carried forward,	2915	10	0	16878	0	0

	l.	s.	d.	l.	s.	d
Brought forward,	2915	10	0	16878	0	0
12,000 loads compoſt,	144	0	0			
800 acres of hay, -	300	0	0			
Sundries,	200	0	0			
				3559	10	0
Seed.						
855 Turnips, -	42	15	0			
855 cabbages, -	85	10	0			
1280 oats, - -	602	0	0			
1280 graſſes, -	1280	0	0			
				2010	5	0
Sundries.						
104 Horſes, -	1040	0	0			
Wear and tear, -	600	0	0			
Tythe, - -	360	0	0			
Unſpecified demands,	300	0	0			
				2300	0	0
Diſburſement, - -				24,747	15	0
Product of 1000 ſheep, - -	500	0	0			
Improvement of ſtock by 1660 acres of turnips and cabbages, and 800 hay, - -	14480	0	0			
8960 qrs. oats, -	5376	0	0			
				20356	0	0
Expence, -				4391	15	0

General Account at the end of the Seventh Year.

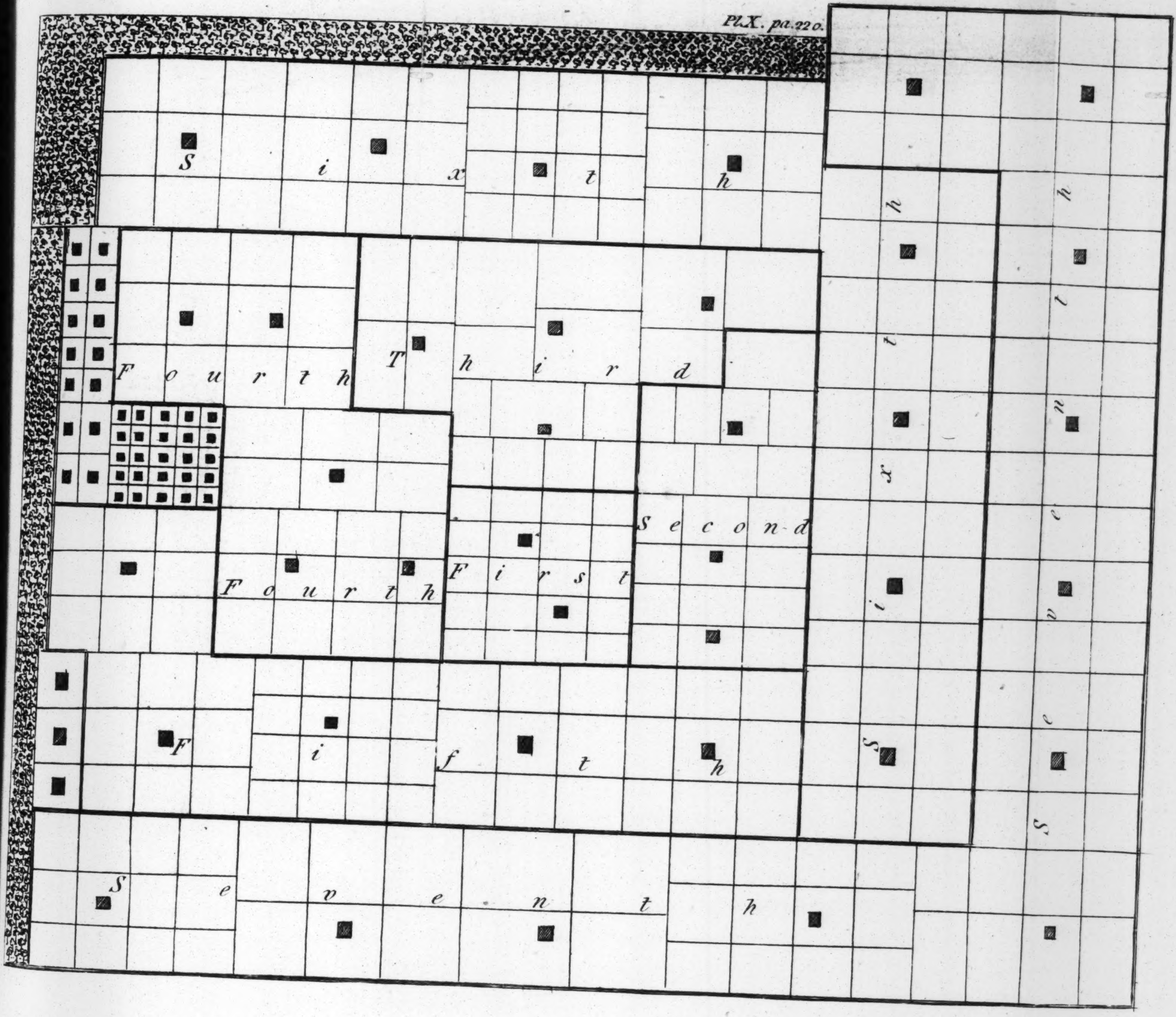
	l.	s.	d.
Caſh in hand at the end of the ſixth, - -	27,118	12	0
Diſburſement of the ſeventh, -	24,747	15	0
Remains, - - -	2,370	17	0
Raiſed on 800 *l.* a year, - -	20,000	0	0
Product of the ſeventh year, -	20,356	0	0
Caſh in hand the end of the ſeventh year, - - -	42,726	17	0

Eighth Year.

Here I ſuppoſe the addition to the end; except a plantation againſt two ſides of the eſtate; and forming 17 little farms, in 180 acres, which will bring the improvement into the form of the annexed plate; the walls extend 8 miles, and the plantation occupies 320 acres: ſo this year's improvement is 500 acres in all. The expence as follows:

	l.	s.	d.
Buildings, - - -	850	0	0
Walling, - - -	560	0	0
Paring and burning, - -	500	0	0
Lime 1500 chaldron, - -	600	0	0
Carried forward,	2510	0	0

Pl.X. pa.220.



Sixth
Fourth
Third
Fourth
First
Second
Sixth
Seventh
Fifth
Seventh

Ba
52
M

Th
12
Su

171
171

104
Wea
Tyth
Plant

Diſbu
Produ
1197
1280

Exper

Labour:

	l.	*s.*	*d.*	*l.*	*s.*	*d.*
Brought forward,				2510	0	0
Bailiffs, - -	210	0	0			
52 men, - -	1300	0	0			
Mowing and harveſting 1710 acres oats, at 1*s.* (part by the men.)	85	10	0			
Threſhing 11,970 qrs.	598	10	0			
1280 acres of hay, -	480	0	0			
Sundries, - -	100	0	0			
				2774	0	0

Seed.

1710 Oats, -	800	0	0			
1710 graſſes, -	1710	0	0			
				2510	0	0

Sundries.

104 Horſes, -	1040	0	0			
Wear and tear, -	500	0	0			
Tythe, - -	360	0	0			
Planting, -	300	0	0			
				2200	0	0
Diſburſement, - -				9994	0	0
Product of 1000 ſheep,	500	0	0			
11970 qrs. oats, -	7182	0	0			
1280 acres of hay, -	1920	0	0			
				9602	0	0
Expence, - - -				392	0	0

General Account at the End of the Eighth Year.

	l.	s.	d.
Caſh in hand at the end of the ſeventh year, - -	42,726	17	0
Diſburſement of the eighth,	9,994	0	0
Remains, - - -	32,732	17	0
Raiſed on 1280*l.* a year, -	32,000	0	0
Product of the eighth year, -	9,602	0	0
Caſh in hand at the end of the eighth year, - -	74,334	17	0

Ninth Year.

The only buſineſs that remains to be done, is the mowing and making 1710 acres of hay: but it will not anſwer to to keep all the ſtock for that purpoſe: nor is there occaſion for it; ſo great a number of ſurrounding tenants will be very glad to contract for it.

	l.	s.	d.
Bailiff, - - -	100	0	0
1710 acres of hay, all the work, at 12 *s.* - - -	1026	0	0
Tythe, - - -	171	0	0
Sundries, - - -	100	0	0
Diſburſement, - - -	1397	0	0

	l.	s.	d.
Product of 1710 acres at 30*s*.	2565	0	0
Diſburſements, - -	1397	0	0
Balance, - -	1168	0	0

General Account.

	l.	s.	d.
Caſh in hand the end of the eighth year, - -	74,334	17	0
Diſburſement of the ninth, -	1,397	0	0
	72,937	17	0
Raiſed on 1710 *l. per annum*, -	42,700	0	0
	115,637	17	0
Product of the ninth, - -	2,565	0	0
	118,202	17	0

Sale of Stock.

	l.	s.	d.			
1000 Sheep, - -	750	0	0			
104 horſes, - -	500	0	0			
Implements, - -	1000	0	0			
				2,250	0	0
Caſh in hand at the end of the ninth year, - -				120,452	17	0

	l.
Original mortgage, - -	9,558
Raiſed upon the farms at various times, - -	129,700
Carried over,	£. 139,258

Brought forward,	£. 139,258
Deduct the above total, - -	120,452
All the mortgages paid, there remains a debt of, - -	18,806

The eſtate conſiſts of 5370 acres, beſides the plantation, let at as many pounds.

	l.
Valued or ſold at 30 years purchaſe, the amount is, -	161,100
Deduct the remaining debt, -	18,806
Remains neat profit on the improvement, - - -	142,294

This profit in nine years from ten thouſand pounds, is, I apprehend, infinitely greater than is poſſible to be made in any other undertaking, to which it can be applied: but this by no means contains the whole profit: 320 acres of a thriving plantation (there can be no doubt of its ſucceſs after paring, burning and liming, as for graſs; and 3 ploughings) are no trifle: beſides, an eſtate, which is repaired by the tenants, in a country where reparations are too ſlight to calculate; and gained without a land-tax, would ſell for far more than 30 years purchaſe; 35 would be very moderate, and this would add above 25,000 *l.* to the profit.

Throughout this calculation, you will obſerve, that I have increaſed many articles of expence, much beyond the proportion of the former eſtimates; allowing for all thoſe circumſtances which could poſſibly raiſe expences from the magnitude of the undertaking; I purpoſely did this, though againſt my judgment of the fact, for I would engage, that in ſuch an undertaking, the longer I continued improving, with ſo much money in my pocket, as to enable me to take *all* hands that offered, whether builders, parers, labourers of all ſorts, &c. the cheaper I would get my work done.

Reſpecting the quantity of 5000 acres, no difficulty occurs; for, in the moor counties, numerous gentlemen, even of middling eſtates, poſſeſs much larger tracts; and the nobility and gentry of great eſtates, thoſe which are ten times as extenſive; ſo that I ſpeak to a very numerous body of people, who have theſe vaſt improvements at command.

I have found ſeveral gentlemen in moor countries that ſeemed more intent on planting than cultivating. A waſte tract had certainly better be planted than continue waſte; but a general ſpirit of planting land that can be converted into graſs fields, I will venture to aſſert pernicious to the public good; and to yield to the poſſeſſor not a fortieth part of the benefit which I here propoſe; for what is the planting in queſtion? not woods of oak to build our future navies, but every kind of the inferior ſorts; which are and ever will be purchaſed in any quantities from the *Baltic*; and I will venture to aſſert, and nothing can be worſe, in a national light, than to plant land that would yield corn or graſs, with woods to be bought of our neighbours. In a rich, populous, induſtrious kingdom, every inch of the ſoil ſhould be applied to feeding MAN: will any one ſuppoſe ſo well cultivated a kingdom will want money to buy firs and pines? and calculate the product in a given number of years, the growth of a fir, for inſtance, of an acre of graſs worth from 12 *s.* to 20 *s.* an acre; and compare that with the value of an acre of firs, and eſtimate the compound intereſt *gained* in one caſe, and *loſt* in another. Such a compariſon would ſoon convince you of the immenſe difference in value. It is in this light, that all groves, and woods of underwood are ſo many nuiſances in a kingdom where coal is to be had in every village: ſuch grounds ſhould all produce corn and graſs. The ſurface of the kingdom producing your food, and its bowels your firing.

But, relative to the planting moors, it is impoſſible to ſay too much in praiſe of it, if only ſuch ſpots are planted, as can be cultivated to neither corn nor graſs; ſuch are ſteep banks, ſome mountains, and all ſpots that abound exceſſively with the *whin* ſtone, which will not burn to lime, and is ſo hard that you cannot rive or cut it. In ſuch places, by all means plant. But ſo to uſe land which can be made worth from 12 *s.* to 20 *s.* an acre is execrable:——beſides, the profit to the landlord is immenſe in one caſe and in the other, *to himſelf* perhaps a loſs. And as I am at preſent explaining the methods by which landlords may gain great ſums of money in a ſhort time, planting has nothing to do with the affair, except in ſuch ſpots as I deſcribed, or by way of ſcreens.

I cannot but earneſtly recommend to the poſſeſſor of moors, to conſider theſe eſtimates: in what other ways can they gain ſuch incomes, or ſuch large ſums of money? Theſe are not the ſchemes of a viſionary projector; but a train of facts, connected and examined. They are facts gained on the ſpot:——I viewed, with the utmoſt attention, vaſt tracts of theſe moors: I minuted the expence of every operation in their culture: I viewed the fields that were improved from them; I ſaw the cattle thoſe fields carried: I made memorandums of the rent. In a word, I offer nothing *new* to theſe gentlemen: I take their own facts, their acknowledged facts—and I only ſay to them, *If your facts are true, you may, with ſuch a ſum of money, do ſo and ſo.* I have merely connected facts——the connection indeed brings to light advantages to be reaped, and fortunes to be gained much beyond the common ideas, even of thoſe men who are as well ſatisfied of the truth of thoſe facts as I am myſelf.

The immenſity of the profit is nearly the ſame to thoſe who would hire theſe moors, for rent is too trifling to calculate.

LETTER VIII.

BEFORE I quit the ſubject of this kind of moor, I ſhall offer another calculation for the uſe of the ſmaller landholders; in which I ſhall examine the *leaſt* extent of improvement that can profitably be undertaken: this is a matter of much conſequence, for many landlords and others might poſſibly be induced to cultivate a ſmall quantity of moor at a time, if they were convinced that it would not be too expenſive to anſwer in ſmall: I ſhall therefore, examine this point, and diſcover the profit that may be expected from the conduct.

I ſhall ſuppoſe only 20 acres broken up the firſt year. Four horſes will be requiſite for bringing lime, but I ſhall ſtate but one man and a plough. As the buildings will clear away many ſtones, the 20 acres ſhall be in one piece: leſs than one man and one plough cannot be ſuppoſed; I ſee not how a ſmaller improvement can be ſketched.

Buildings,

	l.	s.	d.
Buildings, - -	140	0	0
Walling; $\frac{3}{4}$ and $\frac{1}{8}$ of a mile, -	61	5	0
Paring and burning, at 17 *s.* -	17	0	0
Lime 60 chaldrons, at 8 *s.* - -	24	0	0
	242	5	0

Stock.

	l.	s.	d.			
200 Sheep, - -	100	0	0			
4 horſes, - -	50	0	0			
1 waggon, - -	20	0	0			
3 three wheeled carts,	20	0	0			
1 plough, - -	3	13	6			
1 pair of harrows, -	2	0	0			
1 roller, - - -	2	0	0			
Harneſs, - -	6	0	0			
Sundries, - -	10	0	0			
				213	13	6

Labour.

1 Man, - -	25	0	0			
A boy, - -	12	0	0			
Hand-hoeing 10 acres of turnips, - -	5	0	0			
Ditto and planting, 10 of cabbages, at 8 *s.*	4	0	0			
				46	0	0

Seed.

10 Acres of turnips, -	0	10	0			
10 of cabbages, -	1	0	0			
				1	10	0
Carried over,				503	8	6

Sundries.

	l.	*s. d.*	*l.*	*s. d.*
Brought over, -			503	8 6
Keeping 4 horſes, -	40	0 0		
Wear and Tear, -	5	0 0		
Tythe, - -	2	0 0		
Sundry unſpecified expences, - -	10	0 0		
			57	0 0
Total diſburſement, -			560	8 6
200 Sheep profit, - - -			60	0 0
Expence, -			500	8 6
The man and team are employed by the lime and tillage, only 50 days; there remains at leaſt 230 days for him and his 4 horſes and waggons to perform the carting of ſtone, &c. for the buildings and walls: ſuppoſe the deduction from the expence of thoſe articles only 5 *s.* a day, and that he works 100 days, - -			25	0 0
		£.	475	8 6

The paring and burning in this account, the quantity being ſo ſmall, is reckoned only 6 *d.* above the common price. The ſheep I have proportioned to the turnips;

I ſuppoſe a good breed bought in at 10 *s.* a head: and calculate their profit, only the paying 3 *l.* an acre for the turnips and cabbages, though kept the whole year. This point of keeping ſheep for eating the turnips, *&c.* off, and folding the land, cannot be too much inſiſted on, it is abſolutely neceſſary in theſe improvements. The boy is kept to attend and fold them. The man and team has 130 days to ſpare; theſe muſt be employed in carting ſtones for the next and ſucceeding year's walling, and charged to that year at 5*s.* a day: a price extremely low, but in ſuch charges better be under them, than over the mark.

Second Year.

Twenty acres more to be broken up this year, in two diviſions; the walling conſequently is half a mile and one eighth. No addition to be made to the ſtock.

	l.	*s.*	*d.*
Walling, - - -	43	2	6
Paring and burning, - - -	17	0	0
Lime, - - - - -	24	0	0
	84	2	6
Deduct 65 days work performed laſt year, - - - -	16	5	0
Carried over, £.	67	17	6

Labour.

	l.	s.	d.	l.	s.	d.
Brought over, -				67	17	6
1 Man and boy, -	37	0	0			
Handhoeing 10 acres of of turnips, -	5	0	0			
Ditto and planting 10 of cabbages, - -	4	0	0			
Mowing 20 of oats, -	1	10	0			
Threſhing 140 qrs. -	7	0	0			
				54	10	0
				122	7	6

Seed.

10 of turnips, 10 of cabbages, - -	1	10	0			
20 oats, - -	8	15	0			
20 graſſes, - -	20	0	0			
				30	5	0

Sundries.

4 Horſes, - -	40	0	0			
Wear and tear, -	5	0	0			
Tythe, - -	4	0	0			
Unſpecified expences,	15	0	0			
				64	0	0
Diſburſement, -				216	12	6
Product of ſheep, -	80	0	0			
140 qrs. of oats, -	84	0	0			
				164	0	0
Expence, -				£. 52	12	6

This year the profit of the ſheep is ſomewhat raiſed, which is requiſite. The man and his waggon brings the lime in three weeks. He ploughs the new land in two more. And the turnip land thrice for oats, in about 9 more: this is 14 weeks; we may allow 6 more for harveſt, and horſe-hoeing and cabbages; there will then remain 32 weeks: ſuppoſe we allow for trifles, and call it 20 effective ones: in this time, he muſt bring 100 chaldrons of lime, which will take him 5 weeks: lay them in a heap; then let him with the ſmall carts, move the ſtable dunghill of two years, to the heap of lime; and alſo as much of the earth of the neareſt wet or boggy moor, as his time will allow, ready to be mixed up, and ſpread next year on the graſs land. Suppoſe 200 ſmall loads of dung; in 3 weeks, and in the remaining 12 weeks, 10 load of earth *per diem*, or 720 in all: 100 chaldron lime, 100 loads dung, and 720 loads of rich black peat moor will make an excellent compoſt of 1020 ſmall (three wheeled) cart loads; a quantity ſufficient to manure the 20 acres of graſs, 50 loads *per* acre, which will make it as fine meadow as any in the world.

Third Year.

Another addition of twenty acres to be made this year, in two fields as before:

	l.	*s.*	*d.*
Walling, - - - -	43	2	6
Paring and burning, - -	17	0	0
Lime, - - - -	24	0	0
Ditto 100 chaldron before mentioned for compoſt, - - -	40	0	0
	124	2	6
Remaining deduction of carting ſtones,	16	5	0
	107	17	6

Labour.

1 Man and a boy, -	37	0	0			
Hoeing 10 acres of turnips, and planting and hoeing 10 of cabbages,	9	0	0			
Mowing and harveſting 20 acres of oats, 2 *s.*	2	0	0			
Threſhing, 140 qrs.	7	0	0			
Mowing, making, and ſtacking 20 acres of hay, 7 *s.* 6 *d.* -	7	10	0			
Mixing, filling and ſpreading 1020 ſmall loads of compoſt at 2 *s.* 6 *d.* a ſcore, - -	6	5	0			
Sundries, - -	10	0	0			
				78	15	0
Carried over,				180	12	6

Seed.

	l.	*s.*	*d.*	*l.*	*s.*	*d.*
Brought over, -				186	12	6
10 Acres of turnips, 10 of cabbages, -	1	10	0			
20 oats, - -	8	15	0			
20 graſſes, - -	20	0	0			
				30	5	0

Sundries.

	l.	*s.*	*d.*	*l.*	*s.*	*d.*
4 Horſes, - -	40	0	0			
Wear and tear, -	15	0	0			
Tythe, - -	6	0	0			
Unſpecified expences,	20	0	0			
				81	0	0
Diſburſement, -				£. 297	17	6
Product of 200 ſheep,	100	0	0			
140 qrs. oats, -	84	0	0			
20 acres of hay, -	30	0	0			
				214	0	0
Expence, -				83	17	6

The buſineſs of the team as before on lime, and tillage harveſt and horſe-hoeing, will, with allowances, amount to 20 weeks; in addition to which, there is this year 20 acres of hay, which will take him, ſuppoſe two; and driving 1000 loads of compoſt, 40 in a day, which is 4 weeks, but call it five. In all 27 weeks; there remains 25; which call 20 for carting compoſt: 100 chaldrons lime, the ſtable, dunghill, and 700 of earth as before: there will be ample time for this, with due allowances for weather.

But we muſt here conſider the management of the 20 acres of graſs that has been mown: it will be adviſable to feed it pretty often; the moory ſoil is looſe, and nothing is of greater uſe than treading ſuch a ſoil: the regular ſtock that is kept thro' winter ſhould be cows: but for ſummer alone, I ſhould adviſe the ſtocking with young cattle; buying in *Scotch* heifers, for inſtance, of two years old; and ſelling them after a year's graſs. It is very profitable, and will certainly pay 40*s.* an acre, clear profit for the graſs, one cannot eſtimate the product in this manner at leſs: it is certainly under the mark, and ſo I would chuſe the calculation ſhould be; but it is to be obſerved, that I ſhall, in purchaſing the cows, allow for the feed of the 4 horſes. They muſt be kept in winter on the ſtraw, with ſome hay at proper times; the farm will thus be a very well appointed one. There will be every year 20 acres of ſtraw, 20 of hay, and 20 of turnips for the ſheep.

I ſhall ſuppoſe only 10 cows, bought at firſt.

Fourth Year.

The ſame addition, made as before, of 20 acres in two fields.

	l.	s.	d.
Walling, - - - -	43	2	6
Paring and burning, - -	17	0	0
Lime, - - - -	24	0	0
Ditto 100 chaldrons for compoſt, -	40	0	0
	124	2	6

Labour.

	l.	s.	d.	l.	s.	d.
1 Man and boy, - -	37	0	0			
On turnips and cabbages,	9	0	0			
Mowing and 20 acres oats,	2	0	0			
Threſhing 140 qrs. -	7	0	0			
Compoſt 1000 loads, at 2 *s.* 6 *d.* a ſcore, - -	6	2	6			
Sundries, - -	10	0	0			
				71	2	6
10 cows, - -				40	0	0
Seed as before, - -				30	5	0
Sundries ditto, except horſes, with 2 *l.* tythe, - - -				43	0	0
Diſburſement, -				308	10	0
Product of 200 ſheep,	100	0	0			
Brought forward,	100	0	0	308	10	0

	l.	s.	d.	l.	s.	d.
Carried forward,	100	0	0	308	10	0
110 quarters oats *, -	66	0	0			
10 cows †, - -	45	0	0			
				211	0	0
Expence, - -				97	10	0

This year the buſineſs of the team is exactly as it was the laſt; and having the ſame leiſure, the ſame compoſt of lime, and earth is formed; with the addition, however, of the yard dung of 10 cows, which, from 20 acres of oat-ſtraw, and much hay feeding, may be eſtimated at 20 loads *per* head, ſo that the compoſt will be 1200 ſmall loads; the team will have much more time than requiſite for carting this addition; for the man may with one or two horſes and three carts, carry with eaſe 40 loads a day. That quantity will manure 20 acres, at the rate of 60 *per* acre. I would always adviſe the year's compoſt to be laid, either on the new graſs after the oats are carried, or on that which has been once mown. The graſs and hay are not charged, as the heifers will not be ſold till next year.

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* 30 qrs. deducted from the whole produce for the 4 horſes, which is 1 qr. *per* week for 30 winter weeks.

† The horſes, I ſuppoſe to eat 10 acres of hay, and 5 of graſs, there remains 15 of the latter at 40 *s.* for the cows; and 10 of the former at 30 *s.* and I ſuppoſe the cows to pay for your land at thoſe rates; whether by dairying, ſuckling; or ſmall fatting beaſts inſtead of cows, kept the year round: whatever the ſtock is, the data are the ſame.

Fifth Year.

The addition the ſame as before; but there being a freſh acquiſition of another 20 acres of graſs, more ſtock muſt be bought in: and the 20 acres of graſs fed laſt year, will be much better this—for a new lay increaſes in value for ſeveral years; hence the neceſſity of likewiſe buying more on that account: The management of the ſtock is this; the ten cows bought in laſt year, are ſtanding ſtock.

This year he has 20 acres of graſs for his horſes and cows as before, and 20 more that will ſummer 40 heifers; but let me here remark to the reader, that it is not a matter that demands much accuracy, becauſe the *profit* on them will not be reckoned *by the head*, but *the acre* of land fed: I ſtate the ſtock bought, that the improver may ſee that at ſuch and ſuch

times,

times, nearly ſuch ſums of money will be requiſite for buying ſtock for his land.

	l.	s.	d.	l.	s.	d.
Walling, paring, lime, &c. as before,				124	2	6
Labour ditto with addition of 200 loads to compoſt,				72	7	0
Seed as before,				30	5	0
Sundries.						
Wear and tear, and ſhoeing, &c.	20	0	0			
Tythe,	5	0	0			
Unſpecified demands,	20	0	0			
				45	0	0
40 heifers or beaſts,				80	0	0
Diſburſement,				351	14	6
Product of 200 ſheep,	100	0	0			
110 qrs. oats,	66	0	0			
10 cows,	45	0	0			
Stock improved by 20 acres graſs to,	120	0	0			
				331	0	0
Expence,				20	14	6

Sixth Year.

Addition to the cultivated land as before; and the courſe of the buſineſs is this year alſo the ſame: ten cows and four horſes, the ſtanding ſtock for winter and ſummer, to expend twenty acres of ſtraw, twenty acres of hay, and twenty of graſs; and heifers or ſteers, or young cattle, to be bought in for all the reſt of the graſs, late in ſpring, and ſold again in autumn.

	l.	*s.*	*d.*
Walling, paring, burning and lime, as before,	124	2	6
Labour ditto,	72	7	0
Seed ditto,	30	5	0
Sundries ditto, with 2*l.* addition to tythe,	47	0	0
Stock (heifers or ſteers) for 40 acres of graſs, at 4*l.* *per* acre,	160	0	0
Diſburſement,	433	14	6

	l.	*s.*	*d.*			
Product 200 ſheep,	100	0	0			
110 quarters of oats,	66	0	0			
Ten cows,	45	0	0			
Stock improved by 40 acres graſs to	240	0	0			
				451	0	0
Diſburſement,				433	14	6
Balance,				17	5	6

Seventh Year.

The addition of land to be this year the ſame as before; and I ſhall alſo ſuppoſe the ſtock the ſame, that twenty acres of graſs may be mown to keep as a ſtack of hay in ſtore. I ſhall alſo charge the expence of another man to anſwer the demand of incidental work relative to cattle, extra mowing, *&c.* *&c.*

	l.	*s.*	*d.*	*l.*	*s.*	*d.*
Walling, paring, lime, *&c.*				124	2	6
Labour as before, - -	72	7	0			
One man more, - - -	25	0	0			
				97	7	0
A large cart, - - -	10	0	0			
A plough, - -	3	13	6			
Harrows and roller, -	3	0	0			
				16	13	6
Seed as before, - - - - -				30	5	0
Sundries ditto, with 2*l.* tythe, -				49	0	0
Stock as before, - - -				160	0	0
Diſburſement, - -				477	8	0
Produce 200 ſheep, -	100	0	0			
110 quarters of oats, -	66	0	0			
Ten cows, - -	45	0	0			
Stock improved by forty acres graſs to - -	240	0	0			
				451	0	0
Expence, - - £.				26	8	0

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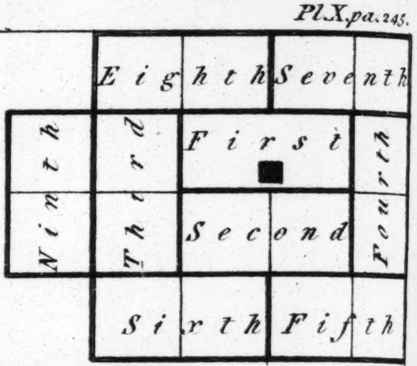
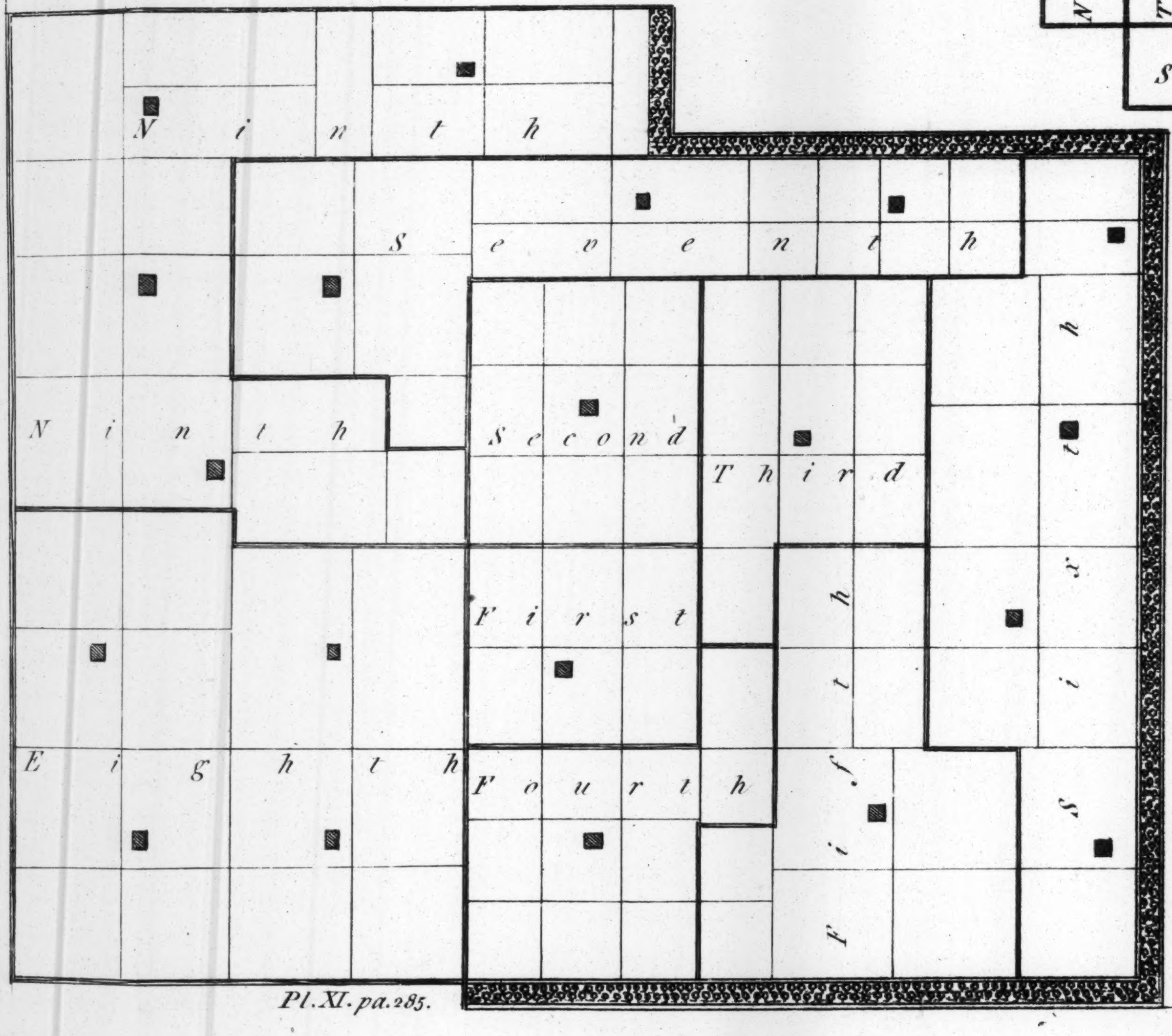
Pl.X.pa.245.





Pl.XI.pa.285.

Eighth Year.

Addition the ſame as before, and the whole ſtocked this year as uſual.

	l.	s.	d.
Walling, paring, lime, - -	124	2	6
Labour as before, - - -	97	7	0
Seed ditto, - - - -	30	5	0
Sundries ditto, - - - -	51	0	0
Stock for 80 acres, at 4 *l.* - -	320	0	0
Diſburſement, - -	622	14	6

	l.	s.	d.			
Product ſheep, - - -	100	0	0			
Oats, - - -	66	0	0			
Ten cows - - -	45	0	0			
Stock improved by eighty acres to - - - -	480	0	0			
				691	0	0
Diſburſement, -				622	14	6
Ballance, - -				68	5	6

Ninth Year.

Addition to the cultivated land; and the purchaſe of ſtock as uſual. The whole will then lie as in Plate X.

	l.	s.	d.
Walling, *&c. &c.* - - -	124	2	6
Labour, - - - -	97	7	0
Seed, - - - - -	30	5	0
Sundries, - - - -	53	0	0
Stock for 100 acres, - - -	400	0	0
Diſburſement, - -	704	14	6

	l.	s.	d.			
Product ſheep, - -	100	0	0			
Oats, - - -	66	0	0			
Ten cows, - -	45	0	0			
Stock improved by 100 acres to - -	600	0	0	811	0	0
Diſburſement, - -				704	14	6
Balance, - -				106	5	6

We are now arrived at the product that will enable us to calculate the total ſum for ſtock; which before we could not do, for the expence of next year will exceed that of the preſent only by 80 *l.* for ſtock of another twenty acres of graſs; and 2 *l.* tithe, which will make the ſum of 786 *l.* 14 *s.* 6 *d.* whereas the produce of this year is 811 *l.* ſo that now the produce one year will be more than ſufficient for the expences of the next.

	l.	s.	d.	l.	s.	d.
Diſburſement of the firſt year, - - - -				560	8	6
Diſburſement of the ſecond, - -	216	12	0			
Intereſt of 560*l.* - -	22	8	0			
	239	0	6			
Product of the firſt, -	85	0	0			
				154	0	6
Diſburſement of the third, - - -	297	17	6			
Intereſt of 710*l.* - -	28	8	0			
	327	5	6			
Product of the ſecond,	164	0	0			
				163	5	6
Diſburſement of the fourth, - -	308	10	0			
Intereſt of 870*l.* -	34	16	0			
	342	16	0			
Product of the third,	214	0	0			
				128	6	0
Diſburſement of the fifth, - - - -	351	14	6			
Intereſt of 1000*l.* -	40	0	0			
	391	14	6			
Product of the fourth,	211	0	0			
				180	14	6

	l.	*s.*	*d.*	*l.*	*s.*	*d.*
Diſburſement of the ſixth, - - -	433	14	6			
Intereſt of 1180*l.* - -	47	4	0			
	480	18	6			
Product of the fifth,	331	0	0			
				149	18	6
Diſburſement of the ſeventh, - - -	477	8	0			
Intereſt of 1330*l.* -	53	4	0			
	560	12	0			
Product of the ſixth,	451	0	0			
				69	12	0
Diſburſement of the eighth, - - - -	622	14	6			
Intereſt of 1400*l.* -	56	0	0			
	678	14	6			
Product of the ſeventh,	451	0	0			
				227	14	6
Diſburſement of the ninth, - - -	704	14	6			
Intereſt of 1627*l.* -	65	0	0			
	769	14	6			
Product of the eighth,	691	0	0			
				78	14	6
Total requiſite for this improvement,				1713	4	6
A years intereſt to come, - - -				68	8	0
				1781	12	6

Hence it appears that a profitable improvement of moors cannot be undertaken with a ſhilling leſs capital than 1781 *l.* 12 *s.* 6 *d.* clear of all extraneous expences: no maintenance of family — no private expences — no connection with another farm: this amount muſt be clear, and ſacredly applied to the improvement alone. The largeneſs of it gives us at once the reaſon of ſo few improvements of this ſort being made; and of the opinion of the unprofitableneſs of the work:—men who have thought of improvements, and began to execute them, have never conſidered the great importance of a regular conduct in the work. They have ſome money in their pocket, which they are willing to lay out in ſuch a work; they begin it——they incloſe twenty acres. They pare, burn, lime, plough it, and ſow turnips: by that time, if they calculate at all, they find they have not teams enough for the tillage and harveſting twenty acres of oats, and at the ſame time improve another twenty acres—and yet leſs to add as much every year—their money preſently falls ſhort, and a gap is made in the improvement till more is ready. I could prove to demonſtration, by a calculation, how great a loſs muſt be ſuſtained by a ſingle interruption in the improvement. The annual increaſe furniſhes the turnip crop: what becomes of the flock that year? But they muſt be had; the laſt year's land is therefore turnipped again, which upon ſuch looſe land, that requires for many reaſons to be laid as ſoon as poſſible to graſs; as well for binding it, as to keep the aſhes and lime from ſubſiding ——is fatal, and the future meadow damaged greatly. But this is not all: ſtraw muſt likewiſe be had; ſo the oats are likewiſe ſown twice; can any thing be more imprudent? Were I to enlarge on this head, I ſhould find no difficulty in convincing my readers; but I think the argument is ſelf-evident. The facts are ſo ſtrong, that I have no doubt, but if my former grand improver, who I ſuppoſed to begin with 10,000*l.* had, in the midſt of the work, ſtopped for one year only the annual increaſe, that it would, in the above reſpects ——in the diſmiſſion of his hands, and in various other points, be attended with the loſs of from 20 to 40,000*l.* in the nine years undertaking.

Whoever therefore undertakes, even in the loweſt ſtile, to improve a moor, let him lay it down as a determined point to make an annual increaſe of his land. He may certainly make a profit without ſuch a plan, but I will venture to aſſert that profit to be trifling, compared to what he would reap from a different conduct; and it is very obſervable, that among the improvers I met with in the north, no one of them had proceeded upon this plan, ſo extremely requiſite; and yet their improvements were very profitable. What would they not have been, had they given due attention to ſo indubitable an advantage!

Reſpecting the profit of this improvement, it is extremely great. Suppoſing it carried on juſt as hitherto, with the addition of only twenty acres *per annum*, it will be as follows: The *increaſe* of expence each year is 82 *l.* that is, 80 *l.* for buying ſtock, and 2 *l.* tithe. And the increaſe of product is 120 *l.* that is the ſtock improved by twenty acres to that amount.——The account will therefore be as follows:

	l.
Product of the ninth year. - -	811
Expences of the tenth year, - -	786
Balance carried to next year, -	25
Product of tenth, - - - -	931
Balance, - - -	25
	956
Expences of 11th, intereſt included, -	936
	20
Product of the eleventh, - -	1051
	1071
Expences of the twelfth, - - - -	1018
Balance, - - -	53
Product of the twelfth, - -	1171
	1224
Expences of the thirteenth, - -	1100
Balance, - -	124

This balance is ſufficient for an increaſe of the annual improvement, about five acres, for inſtance; which would be much the moſt profitable uſe it could be applied to.

Carried over, £. 124

	l.
Brought over,	124
Product of the thirteenth, - -	1291
	1415
Expences of the fourteenth, - -	1182
Balance, - - -	233
Product of the fourteenth, - -	1411
	1644
Expences of the fifteenth, - -	1264
Balance, - - -	380
Product of the fifteenth, - - -	1631
	2011

And ſo on. But I ſhall ſtop here, as the improver certainly ſhould not longer delay an increaſe of his annual improvement. He has here gained, caſh in hand, 2011*l.* ready to proſecute his undertaking, beſides all the ſtock of his farm, and the fee ſimple of 300 acres of admirably improved land, that would let for 300*l.* a year: worth at thirty years purchaſe 9000*l.* which, with the above 2000, and his ſtock, is little ſhort of 12,000*l.* and all from the original ſum of 1781*l.* It is certainly the moſt advantageous method in the world of expending ſuch a ſum of money, and is a freſh proof that no man can diſpoſe of his money to greater profit than by improving moors.

Upon the whole, it appears that the undertaking improvements of this nature is a work that requires very large ſums of money: 1700*l.* I hold to be the loweſt that a man can ſafely begin with; as leſs than twenty acres annual improvement will be very unprofitable in requiring an equal team, and in many reſpects an equal expence; from whence we may determine that the profit which thoſe reap from moor improvements, who begin with leſs ſums of money, though perhaps with larger quantities of land, being leſs than I have proved in theſe calculations, are no real arguments againſt their accuracy, ſince they blundered in the eſſentials of the undertaking.

LETTER IX.

I FLATTER myſelf, that the preceding calculations will ſuffice to ſet the improvement of one ſort of moor land in a clear light: in that light every landlord ought to view it, before he undertakes the buſineſs, that he may be ſtrongly impreſſed with the neceſſity of applying a ſufficient ſum of money to the work, and, with the certainty of immenſe profit, takes that neceſſary precaution. I proceed, in the next place, to calculate the improvement of another ſort of moor; *viz.* the ſame as the preceding, except the circumſtance of ſtone that is found either upon, or under the ſurface in quarries, being limeſtone. This variation is very important, and will give riſe to new combinations in every particular; diſtinctions of this nature are abſolutely requiſite: for if a gentleman, from an accurate eſtimate of improving the gritſtone moors, 5 or 6 miles from lime, determines to improve a limeſtone moor, he will unavoidably be a conſiderable loſer; the data are ſo different, notwithſtanding the ſimilarity of ſoil, that the expences of one, muſt never be implicitly followed in the conduct of the other.

In the improvement of this ſort of moors, I am particularly fortunate in authentic data; for, the reader by turning to the work above quoted, will find, that the very ingenious Mr. *Scroope*, from many years experience of this ſort of moor, deduced the following circumſtances:

Walling, 5*s.* 6*d.* a rood.
That all expences of burning lime, are 3*s.* 10*d.* *per* chaldron.
That paring, burning, and ſpreading the aſhes, is 16*s.* 6*d.* *per* acre.
That the products of the moor, are turnips worth 2*l.* 17*s.* 6*d.* *per* acre.
Oats, 5 quarters.
Cabbages, 25 tons.
Maſlin, 3 quarters.
Graſs that will keep 7 ſheep *per* acre through ſummer; or a cow to an acre and an half.

But I cannot avoid remarking, that theſe products are thoſe gained by a conduct, in ſome reſpects, very different from what I particularly recommended in the preceding letters; turnips were oftentimes repeated once, twice, and even three times —ſome fields were actually fallowed. In others, oats and maſlin were ſown ſeveral times before the graſſes; inſomuch that in the 12th year of the improvement, when 127 acres were brought into culture, no leſs than 81 of them were under arable crops, and even 63 in oats, which ſhews how little the material object of laying to graſs as ſoon as poſſible, had been adhered to; for though much of the farm is white land, yet the more kept under the plough, undoubtedly the leſs could annually be improved: I by no means offer this in arraignment of the conduct of ſo ſpirited a cultivator, to whom the world is ſo much obliged, but merely to ſhew that the crops the land yielded, were in no proportion to what would have been produced, had it ſuited the improver's general deſign to convert the land as ſpeedily as poſſible to graſs, that the annual increaſe might be unbroken. Another remark I muſt make, is, that no ſheep were folded on any of the lands. For theſe reaſons, I ſhall make ſome ſmall variations in the products, ſuch as the moſt rigorous accuracy will allow me in conſideration of a great variation in conduct. I ſhall ſuppoſe the improvement to be undertaken by the incloſure of 120 acres.

Firſt Year.

One hundred and twenty acres to be incloſed in ſix fields, each of 20 acres: and the farms to be let in various quantities according to the ſpace improved, each year's incloſures to form one farm, by which means, as before, a ſet of buildings will be erected every year, and workmen always at command: building in theſe moors, on account of lime, is cheaper than in the former ones, but I ſhall adhere to the price of 140 *l.* before uſed.

For paring and burning I ſhall alſo, as before, allow 20 *s.* an acre.

Liming is the mere expence of the lime, which I ſhall call 4 *s.* a chaldron; the carriage is in carts directly to the land, for the lime kilns are erected about the fields where moſt convenient. In reſpect to the conduct of the land, I ſhall, on all accounts, adhere to the former rules, to take the firſt crop, part turnips, and part cabbages, the ſecond oats, and with them to lay down to graſſes: I ſhall, in purſuance of Mr. *Scroope*'s practice, uſe 4 chaldrons of lime *per* acre, inſtead of three.

As to the value of the crops, turnips I ſhall rate at 3 *l. per* acre.

Cabbages at their average value of 7 *s.* * *per* ton; which, at 25 tons, is 8 *l.* 15 *s. per* acre: but to obviate ſuppoſed objections, I ſhall calculate at 6 *l.*

Graſs 20 *s. per* acre, which is certainly the loweſt rate that can, in any eſtimate, be allowed.

In the former moors, I had no *abſolute* authority for the culture of cabbages, therefore was moderate in the ſuppoſed quantity; but the caſe being different here, I ſhall ſuppoſe a much larger quantity of them than of turnips.

	l.	*s.*	*d.*
Buildings, - - -	140	0	0
3 miles of walling, and gates, -	210	0	0
Paring and burning, - -	120	0	0
480 chaldrons of lime, at 4 *s.* -	96	0	0
	566	0	0

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* *Six Months Tour*, Vol. iv. p. 176.

				l.	s.	d.
Brought over, -				566	0	0

Stock.

	l.	s.	d.	l.	s.	d.
100 oxen, - -	700	0	0			
Six horſes, - -	72	0	0			
1000 ſheep, at 7 *s.* 6 *d.*	375	0	0			
3 light narrow-wheeled waggons, for home uſe,	55	0	0			
5 ſmall three wheeled carts,	30	0	0			
Harneſs, - -	9	0	0			
3 Ploughs, - -	10	10	0			
3 harrows, - -	6	0	0			
Rollers and ſundry implements, - -	20	0	0			
				1277	10	0

Labour.

	l.	s.	d.	l.	s.	d.
3 Men, - - -	75	0	0			
1 ſhepherd, - -	20	0	0			
Hoeing 40 acres turnips,	20	0	0			
Planting and hoeing 80 of cabbages, at 8 *s.*	32	0	0			
Filling and ſpreading 480 chaldron or 960 loads, at 3 *s.* a ſcore, -	8	4	0			
Sundry labour, -	10	0	0			
				165	4	0

Seed.

	l.	s.	d.	l.	s.	d.
40 Acres of turnips, -	2	0	0			
80 cabbages, -	8	0	0			
				10	0	0
Carried forward,				2018	14	0

	l.	s.	d.	l.	s.	d.
Brought forward, -				2018	14	0
Sundries.						
Keeping 6 horſes, -	60	0	0			
Wear and tear, -	20	0	0			
Tythe, - -	12	0	0			
To anſwer unſpecified demands, - -	20	0	0			
				112	0	0
Diſburſement, -				2130	14	0
Product of 1000 ſheep, at 7*s.* 6*d.* - -	375	0	0			
Improvement of ſtock by 30 acres cabbages, and 40 turnips; to, -	1000	0	0			
				1375	0	0
Expence, - -				755	14	0

The work done on theſe lands by the team being much lighter than the former, as the lime is all at home, I have charged cheaper horſes. The charge of labour is much higher than the truth, for the three men are not a third employed at ploughing, *&c.* conſequently would be ſet about other work, but that number was requiſite, for ploughing the land in proper time. The carting lime, I ſuppoſe, put out to the labourers, who, with the ſmall carts, and 1 or 2 horſes, will carry 40 loads a day with eaſe. I eſtimate the ſheep to conſume 50 acres of the cabbages.

	l.	s.	d.
Brought over, -	566	0	0

Stock.

	l.	s.	d.	l.	s.	d.
100 oxen, - -	700	0	0			
Six horſes, - -	72	0	0			
1000 ſheep, at 7*s.* 6*d.*	375	0	0			
3 light narrow-wheeled waggons, for home uſe,	55	0	0			
5 ſmall three wheeled carts,	30	0	0			
Harneſs, - -	9	0	0			
3 Ploughs, - -	10	10	0			
3 harrows, - -	6	0	0			
Rollers and ſundry implements, - -	20	0	0			
				1277	10	

Labour.

	l.	s.	d.	l.	s.	d.
3 Men, - - -	75	0	0			
1 ſhepherd, - -	20	0	0			
Hoeing 40 acres turnips,	20	0	0			
Planting and hoeing 80 of cabbages, at 8 *s.*	32	0	0			
Filling and ſpreading 480 chaldron or 960 loads, at 3*s.* a ſcore, -	8	4	0			
Sundry labour, -	10	0	0			
				165	4	

Seed.

	l.	s.	d.	l.	s.	d.
40 Acres of turnips, -	2	0	0			
80 cabbages, -	8	0	0			
				10	0	
Carried forward,				2018	14	

	l. s. d.	l. s. d.
Brought forward, -		2018 14 0
Sundries.		
Keeping 6 horſes, -	60 0 0	
Wear and tear, -	20 0 0	
Tythe, - -	12 0 0	
To anſwer unſpecified demands, - -	20 0 0	
		112 0 0
Diſburſement, -		2130 14 0
Product of 1000 ſheep, at 7*s.* 6*d.* - -	375 0 0	
Improvement of ſtock by 30 acres cabbages, and 40 turnips; to, -	1000 0 0	
		1375 0 0
Expence, - -		755 14 0

The work done on theſe lands by the team being much lighter than the former, as the lime is all at home, I have charged cheaper horſes. The charge of labour is much higher than the truth, for the three men are not a third employed at ploughing, &c. conſequently would be ſet about other work, but that number was requiſite, for ploughing the land in proper time. The carting lime, I ſuppoſe, put out to the labourers, who, with the ſmall carts, and 1 or 2 horſes, will carry 40 loads a day with eaſe. I eſtimate the ſheep to conſume 50 acres of the cabbages.

Second Year.

This year, I ſuppoſe, 160 acres to be broken up, and incloſed in 9 fields: an addition of two horſes and one man, will be ſufficient for getting all the tillage finiſhed in the proper ſeaſons.

	l.	s.	d.
Buildings, - - -	140	0	0
Walling 3 miles and an half, &c.	241	10	0
Paring and burning, - -	160	0	0
640 chaldron of lime, -	128	0	0
100 ditto for compoſt, one to every ox, winter fatted, - -	20	0	0
	689	10	0

Stock.

	l.	s.	d.			
2 Horſes, - -	24	0	0			
120 oxen, - -	840	0	0			
1 waggon, 2 carts, 1 plough and 1 harrow &c. - -	36	0	0			
				900	0	0

Labour.

4 Men, - -	100	0	0			
Shepherd, - -	20	0	0			
Hoeing 60 acres turnips,	30	0	0			
Planting and hoeing 100 of cabbages, -	40	0	0			
Carried over,	190	0	0	1589	10	

	l.	s.	d.	l.	s.	d.
Brought over,	190	0	0	1589	10	0
Filling, *&c.* 740 chaldron lime, 1480 loads, at 3*s.* a ſcore, - -	11	2	0			
Mixing, filling and ſpreading 500 loads compoſt, 2*s.* 6*d.* a ſcore, -	3	2	0			
Sowing 180 acres,	2	0	0			
Mowing and harveſting 120 acres of oats, -	12	0	0			
Threſhing 600 qrs. of oats, at 1 *s.* -	30	0	0			
Sundry labour, -	50	0	0			
				298	4	6
Seed.						
60 Oats, - -	3	0	0			
100 cabbages, - -	10	0	0			
120 oats, - -	56	5	0			
120 graſſes, -	120	0	0			
				189	5	0
Sundries.						
8 Horſes, - -	80	0	0			
Wear and tear, -	40	0	0			
Tythe, - -	28	0	0			
To anſwer unſpecified demands, - -	30	0	0			
				178	0	0
Diſburſement, -				2255	19	6

	l.	s.	d.	l.	s.	d.
Brought forward,				2255	19	6
Product of 1000 ſheep,	450	0	0			
Improvement of ſtock by 50 acres of cabbages, and 60 turnips,	1320	0	0			
600 qrs. oats, at 12 s.	360	0	0			
				2130	0	0
Expence,	-			125	19	6

Third Year.

I ſuppoſe an addition to be made this year of another farm of 180 acres: I have calculated the work of the team, and find that another plough will be neceſſary, only for giving the tillage for the 160 acres of oats in due time, however, it muſt be had, though there comes much idle time, during all the reſt of the year. All the year's tillage and harveſting employs them only 181 days. To call the year 280 days of effective work, there remains 100 for lime cart; in which time, the 8 horſes in four ſets of carts, with labourers ſufficient, will carry each 40 in a day, or 160 *per diem* in all, or 16,000 in the 100 days: this is 8000 chaldrons. The new ground takes but 720: there remains 7280, which is ſo vaſt a quantity, that it will be uſeleſs to lay it on all at once; but I have given the calculation to ſhew what the teams have time for. We muſt therefore employ them in another way. Laſt year were wintered 6 horſes and 100 oxen; ſuppoſe they make 1500 ſmall loads of dung, to which (as only 100 chaldron were before uſed) we will add half as much lime or 750 loads, being 375 chaldrons, together 2250 loads; the teams then have 5030 loads to carry, theſe ſhall be virgin earth mould or black bog earth, and the whole formed into one grand compoſt to be mixed for the graſs land. In all 7280 loads. And in this manner, our improver ſhould plan his work all the time to ſpare from tillage &c. and 4 chaldron *per* acre of lime to the burnt ground, ſhould be employed in forming a compoſt.

	l.	*s.*	*d.*
Buildings, - - -	140	0	0
Walling, &c. 3¾ miles, -	258	15	0
Paring and burning, - -	180	0	0
Lime 720 chaldron, - -	142	0	0
Ditto 375 ditto for compoſt, -	75	0	0
Draining; ſuppoſe - -	200	0	0
Carried over,	995	15	0

	l.	s.	d.	l.	s.	d.
Brought over,				995	15	0
Stock.						
140 Oxen,	980	0	0			
2 horſes,	24	0	0			
Implements,	36	0	0			
				1040	0	0
Labour.						
5 Men,	125	0	0			
A bailiff,	50	0	0			
Shepherd,	20	0	0			
Hoeing 80 acres turnips,	40	0	0			
Planting and hoeing 100 cabbages, 8 *s.*	40	0	0			
Filling, *&c.* 1095 chaldron of lime, 2190 loads, at 3 *s.* a ſcore,	16	7	0			
Mixing, filling, ſpreading 7,280 loads compoſt, at 2 *s.* 6 *d.*	45	10	0			
Sowing 540 acres,	5	0	0			
120 acres of hay, 7 *s.* 6 *d.*	45	0	0			
Mowing and harveſting 160 acres oats,	16	0	0			
Threſhing 800 qrs.	40	0	0			
Sundry labour,	50	0	0			
				492	17	0
Seed.						
80 Turnips,	4	0	0			
100 cabbages,	10	0	0			
160 oats,	84	7	6			
160 graſſes,	160	0	0			
				258	7	6
Carried forward,				2786	19	6

	l.	*s.*	*d.*	*l.*	*s.*	*d.*
Brought forward, -				2786	19	6
Sundries.						
10 Horſes, - -	100	0	0			
Wear and tear, -	60	0	0			
Tythe, - -	46	0	0			
Unſpecified demands,	50	0	0			
				256	0	0
				3042	19	6
Product of 1000 ſheep,	500	0	0			
Improvement of ſtock by 50 acres of cabbages 80 turnips, and 120 hay; to,	1700	0	0			
800 qrs. oats, -	480	0	0			
				2680	0	0
Expence, - - -				362	19	6

Fourth Year.

200 acres added this year; the teams muſt have an addition of one plough, they will then have 85 days to ſpare, for compoſt, carting, *&c.* part of which muſt be proportioned as follows:

	Days.
150 head of cattle, 15 *per* head,	
2250 loads dung, 240 *per diem*,	10
1125 loads of lime (562 chaldron) 240 *per diem*, - -	5
5000 loads earth, 240 *per diem*, -	20
8375 Loads, - - -	35

	l.	s.	d.
Buildings, - - -	160	0	0
Walling, &c. 4¼ miles, -	293	5	0
Paring and burning, - -	200	0	0
Lime 800 chaldron, - -	160	0	0
Ditto 562 ditto compoſt, -	112	8	0
Draining; ſuppoſe - -	200	0	0
	1125	13	0

Stock.

	l.	s.	d.	l.	s.	d.
180 Oxen, -	1260	0	0			
2 horſes, -	24	0	0			
Implements, - -	36	0	0			
				1320	0	0

Labour.

	l.	s.	d.	l.	s.	d.
Bailiff, - - -	80	0	0			
Shepherd, - -	20	0	0			
6 men, - -	150	0	0			
Hoeing 60 acres turnips,	30	0	0			
Planting and hoeing 140 cabbages, -	56	0	0			
Filling, &c. 1362 chaldron, 2724 loads, at 3 *s.*	20	8	0			
Mixing, filling, &c. 8375 loads compoſt, at 2*s.* 6*d.*	52	5	0			
Sowing 240 acres, -	3	0	0			
Mowing and harveſting 180 oats, -	18	0	0			
Threſhing 900qrs. at 1 *s.*	45	0	0			
160 acres of hay, at 7 *s.* 6 *d.* - - -	60	0	0			
Sundry labour, -	50	0	0			
				584	13	0
Carried forward,				3030	6	0

7

	l.	s.	d.	l.	s.	d.
Brought forward, -				3030	6	0
Seed.						
60 Turnips, - -	3	0	0			
140 cabbages, -	14	0	0			
180 oats, - -	94	18	5			
180 graſſes, - -	180	0	0			
				291	18	5
Sundries.						
12 horſes, - -	120	0	0			
Wear and tear, -	100	0	0			
Tythe, - -	56	0	0			
Unſpecified demands,	50	0	0			
				326	0	0
Diſburſement, - - -				3648	4	5
Product of 1000 ſheep,	500	0	0			
Improvement of ſtock by 90 acres of cabbages, 60 of turnips and 160 of hay, -	2220	0	0			
900 qrs. oats, -	540	0	0			
				3260	0	0
Expence, - - - -				388	4	5

General Account at the End of the Fourth Year.

Diſburſement of the firſt year, £. 2130 14 0

	l.	*s.*	*d.*	*l.*	*s.*	*d.*
Brought over, -				2130	14	0
Diſburſement of the ſecond, - -	2255	19	6			
Intereſt of 2130 *l.*	85	0	0			
	2340	19	6			
Product of the firſt,	1375	0	0	965	19	6
Diſburſement of the third, - -	3042	19	6			
Intereſt of 3095 *l.* -	124	0	0			
	3166	19	6			
Product of the ſecond,	2130	0	0	1036	19	6
Diſburſement of the fourth, - -	3648	4	5			
Intereſt of 4131 *l.*	165	0	0			
	3813	4	5			
Product of the third,	2680	0	0	1133	4	5
Total ſum requiſite for the improvement, -				5266	17	5
Product of the fourth year,				3260	0	0
Raiſed on a farm of 120 *l.* a year,				3000	0	0
Caſh in hand at the end of the fourth year, - -				6260	0	0

Fifth Year.

I ſuppoſe an addition made to the cultivated land of a farm of 280 acres in 10 diviſions:

diviſions : for this purpoſe, 4 horſes muſt be added, which will get all the work done in good time, and have 80 days to ſpare for carting compoſt.

	Days.
192 head of cattle at 15, 2880 loads dung, 320 *per diem*,	9
1440 loads lime (720 chaldron) at 320,	5
5000 loads of earth, *&c.*	15
	29

Thus there will be much ſpare time after this is doubled.

	l.	*s.*	*d.*
Buildings,	200	0	0
Walling 4 miles,	276	0	0
Paring and burning,	280	0	0
Lime, 1120 chaldron,	224	0	0
Ditto, 720 ditto,	144	0	0
Draining,	200	0	0
	1324	0	0

Stock.

	l.	*s.*	*d.*			
300 Oxen,	2100	0	0			
4 horſes,	48	0	0			
Implements,	72	0	0			
				2220	0	0
Carried over,				3544	0	0

	l.	s.	d.	l.	s.	d.
Brought over, -				3544	0	0
Labour.						
Bailiff, - -	100	0	0			
Shepherd, - -	20	0	0			
8 Men, - -	200	0	0			
Hoeing 80 acres turnips,	40	0	0			
Planting and hoeing 200 of cabbages, -	80	0	0			
Filling, *&c.* 1840 chaldron of lime, 3680 loads, at 3*s.* - -	27	12	0			
Mixing, filling, *&c.* 9320 loads, at 5*s.* twice,	116	10	0			
Sowing 280 acres,	4	10	0			
Mowing and harveſting 200 acres oats, -	20	0	0			
Threſhing 1000 qrs. -	50	0	0			
180 acres hay, at 7*s.* 6*d.*	67	10	0			
Sundry labour, -	50	0	0			
				776	2	0
Seed.						
80 Turnips, - -	4	0	0			
200 cabbages, -	20	0	0			
200 oats, - -	131	5	0			
200 graſſes, -	200	0	0			
				355	5	0
Sundries.						
16 Horſes, - -	160	0	0			
Wear and tear, -	160	0	0			
Tythe, - -	66	0	0			
Intereſt of 5266 *l.*	211	0	0			
Unſpecified demands,	100	0	0			
				697	0	0
Diſburſement, - £.				5372	7	0

	l.	s.	d.	l.	s.	d.
Diſburſement, -				5372	7	0
Product of 1000 ſheep,	500	0	0			
Improvement of ſtock by 150 acres of cabbages, 80 of turnips, and 180 of hay; to,	3510	0	0			
1000 qrs. of oats, -	600	0	0			
				4610	0	0
Expence, -				762	7	0

General Account at the End of the Fifth Year.

	l.	s.	d.
Caſh in hand at the end of the fourth year, - - - - -	6260	0	0
Diſburſement of the fifth, -	5372	7	0
Remains, - - - -	887	13	0
Raiſed on a farm of 160 *l.* a year,	4000	0	0
Product of the fifth year, -	4610	0	0
Caſh in hand at the end of the fifth year, - - -	9497	13	0

Sixth Year.

The additions this year may conſiſt of 480 acres in four farms; one of 160 acres, and one of 80, one of 100, and one of 120. I ſhall ſuppoſe the addition of 8 horſes, with men, ploughs, waggons, &c. proportioned. They will have 100 days to ſpare from the ſtated work: in part of which time, they ſhould execute the following:

316 head of cattle, at 15 load each, is 4700 loads, at 480 in a day, -	10
2350 loads of lime, (1175 chaldron) at 480, - -	6
12000 loads of earth, at 480, -	25
	41
19050 loads, - - Days,	82

	l.	s.	d.
Buildings, - - -	560	0	0
Walling, 6 miles, - -	414	0	0
Paring and burning, - -	480	0	0
Lime, 1920 chaldron, - -	384	0	0
Ditto, 1175 ditto, - -	235	0	0
Draining, - - -	260	0	0
	2273	0	0

Stock.

	l.	s.	d.		
600 Oxen, -	4200	0	0		
8 horſes, - -	96	0	0		
Implements, -	144	0	0	4440	0 0
Carried over,				6713	0 0

	l.	s.	d.	l.	s.	d.
Brought over,		-		6713	0	0
Labour.						
Bailiff and ſhepherd, -	120	0	0			
12 men, - -	300	0	0			
Hoeing 100 acres turnips,	50	0	0			
Planting and hoeing 380 cabbages, -	152	0	0			
Filling, *&c.* 3095 chaldron of lime, 6190 loads, at 3*s.* -	46	7	0			
19,050 at 5*s.* -	238	0	0			
Sowing 380, - -	7	0	0			
Mowing, *&c.* 280 oats,	28	0	0			
Threſhing 1400 qrs.	70	0	0			
200 acres of hay, -	75	0	0			
Sundry labour, -	50	0	0			
				1136	7	0
Seed.						
100 turnips, - -	5	0	0			
380 cabbages, -	38	0	0			
280 oats, - -	173	8	9			
280 graſſes, -	280	0	0			
				496	8	9
Sundries.						
24 Horſes, - -	240	0	0			
Wear and tear, -	200	0	0			
Tythe, - -	96	0	0			
Intereſt, - -	211	0	0			
Unſpecified demands,	100	0	0			
				847	0	0
Diſburſement,				9192	15	9

	l.	s.	d.	l.	s.	d.
Diſburſement,		-		9192	15	9
Product of 1000 ſheep,	500	0	0			
Improvement of ſtock by 330 acres of cabbages, 100 turnips, and 200 of hay; to,	6780	0	0			
1400 qrs. oats, -	840	0	0			
				8120	0	0
Expence, -				1072	15	9

General Account at the End of the Sixth Year.

	l.	s.	d.
Caſh in hand at the end of the fifth, year, - - -	9497	13	0
Diſburſement of the ſixth,	9192	15	9
Remains, -	304	17	3
Raiſed on a farm of 180 *l.* a year,	4500	0	0
Product of ſixth year, -	8120	0	0
Caſh in hand at the end of the ſixth year, - - -	12,924	17	3

Seventh Year.

The addition of this year I ſhall ſuppoſe to be 500 acres in three farms, one of 180 acres, and two each of 160. No additions will be requiſite to the team: they will have time for all the tillage and regular work, and alſo for carting the compoſt.

	Days.
624 Head of cattle, 15 each, 9360 loads, 480 *per diem*, -	20
4680 of lime, 2340 chaldron at 480 *per diem*, - - -	10
6000 of earth, - - -	13
	43
20,000 loads, Days, -	86

	l.	s.	d.	l	s.	d.
Buildings, - - -				420	0	0
Walling 7½ miles, - -				483	0	0
Paring and burning, -				500	0	0
Lime 2000 chaldron, -				400	0	0
Ditto 2340, - -				468	0	0
Draining, - -				300	0	0
				2571	0	0
Stock.						
1000 Oxen, - -				7000	0	0
Labour.						
Bailiff, ſhepherd, and men, -	420	0	0			
Hoeing 100 acres turnips,	50	0	0			
Carried over,	470	0	0	9571	0	0

	l.	s.	d.	l.	s.	d.
Brought over,	470	0	0	9571	0	0
Planting and hoeing 400 of cabbages,	160	0	0			
Filling and ſpreading 4340 chaldron of lime, 8680 loads, at 3 *s.*	65	2	0			
20,000, at 5 *s.*	250	0	0			
Sowing 580 acres,	12	0	0			
Mowing 480 acres of oats,	48	0	0			
Threſhing 2400 qrs.	120	0	0			
280 acres of hay, at 7 *s.* 6 *d.*	105	0	0			
Sundry labour,	100	0	0			
				1330	2	0

Seed.

	l.	s.	d.	l.	s.	d.
100 turnips,	5	0	0			
400 cabbages,	40	0	0			
480 oats,	253	2	6			
480 graſſes,	480	0	0			
				778	2	6

Sundries.

	l.	s.	d.	l.	s.	d.
24 Horſes,	240	0	0			
Wear and tear,	300	0	0			
Tythe,	126	0	0			
Intereſt,	211	0	0			
Unſpecified demands,	150	0	0			
				1027	0	0
Diſburſement,				12706	4	6

	l.	s.	d.	l.	s.	d.
Diſburſement, -				12706	4	6
Product of 1000 ſheep,	500	0	0			
Improvement of ſtock by 350 acres of cabbages; 100 of turnips; and 280 of hay; to,	9820	0	0			
2400 qrs. oats, -	1440	0	0			
				11760	0	0
Expence, - -				946	4	6

General Account at the End of the Seventh Year.

	l.	s.	d.
Caſh in hand at the end of the ſixth year, - - -	12,924	17	3
Diſburſement of the ſeventh, -	12,706	4	6
Remains, -	218	12	9
Raiſed on a farm of 200 *l.* a year,	5,000	0	0
Product of the ſeventh year,	11,760	0	0
Caſh in hand at the end of the ſeventh year, - -	16 978	12	9

Eighth Year.

This year I ſhall ſuppoſe 580 acres added to the cultivated land, in four farms, three of 160 and one of 100. The team requires an addition for this purpoſe, of four horſes; with men and implements in proportion: it will then have above 80 days for carting compoſt.

1000 head of cattle;

15000 loads at 560 *per diem*, -	28
2000 of lime, 1000 chaldron at 560,	4
5000 earth, - -	10
	42
22000 loads, Days, -	84

	l.	s. d.
Buildings, - - -	560	0 0
Walling 8 miles, - -	552	0 0
Paring and burning, - -	580	0 0
Lime 2320 chaldron, - -	464	0 0
Ditto 1000 ditto, - -	200	0 0
Draining, - -	200	0 0
	2556	0 0

Stock.

	l. s d.		
1100 Oxen, -	7700 0 0		
4 horſes, - -	48 0 0		
Implements, -	72 0 0		
		7820	0 0

Labour.

Bailiff and ſhepherd,	120 0 0		
Another bailiff, -	50 0 0		
Carried over,	170 0 0	10376	0 0

	l.	s.	d.	l.	s.	d.
Brought over,	170	0	0	10376	0	0
14 men, - -	350	0	0			
Hoeing 100 acres turnips,	50	0	0			
Planting, &c. 480 cabbages, - -	192	0	0			
Filling and ſpreading 3320 chaldron, 6640 loads, at 3 s. - -	49	16	0			
22000 at 5 s. -	275	0	0			
Sowing 680 acres, -	15	0	0			
Mowing, &c. 500 acres, at 2 s. - -	50	0	0			
Threſhing 2500 qrs. -	125	0	0			
480 acres of hay, at 7 s. 6 d. - -	180	0	0			
Sundry labour, -	225	0	0			
				1681	16	0

Seed.

	l.	s.	d.	l.	s.	d.
100 turnips, -	5	0	0			
480 cabbages, -	48	0	0			
500 oats, - -	295	0	0			
500 graſſes, -	500	0	0			
				848	0	0

Sundries.

	l.	s.	d.	l.	s.	d.
28 Horſes, - -	280	0	0			
Wear and tear, -	300	0	0			
Tythe, - -	156	0	0			
Intereſt, - -	211	0	0			
Unſpecified demands,	150	0	0			
				1097	0	0
Diſburſement, -				14072	16	0

	l.	s.	d.	l.	s.	d.
Diſburſement, -				14,072	16	0
Product of 1000 ſheep,	500	0	0			
Improvement of ſtock by 430 acres of cabbages, 100 of turnips, and 480 hay, to	113 0	0	0			
2500 qrs. oats, -	1500	0	0			
				13,300	0	0
Expence, - -				772	16	0

General Account at the End of the Eighth Year.

	l.	s.	d.
Caſh in hand at the end of the 7th year, - - -	16,978	12	9
Diſburſement of the 8th, -	14,072	16	0
Remains, -	2,905	16	9
Raiſed on a farm of 280 *l.* a year,	7,000	0	0
Product of the 8th year, -	13,300	0	0
Caſh in hand at the end of the 8th year, - - -	23,205	16	9

Ninth Year.

This year 700 acres may be taken in, in four farms; one of 200 acres, one of 180, and two of 160. The team for this addition muſt be increaſed with ſix horſes, &c.

which then will perform all the work in proper time, with 90 days to ſpare for compoſt cart.

	1128 head of cattle, 15 loads *per* head, are	
16,920	loads at 680 *per diem*, - -	24
4,000	loads, 2000 chaldron of lime at 680,	6
10,000	loads of earth, at 680, -	15
		45
30,920 loads,	Days,	90

	l.	*s.*	*d.*
Buildings, - - -	560	0	0
Walling 9 miles, - -	621	0	0
Paring and burning, - -	700	0	0
Lime, 2800 chaldron, - -	560	0	0
Ditto, 2000 ditto, - -	400	0	0
Draining, - -	400	0	0
	3241	0	0

Stock.

	l.	*s.*	*d.*			
1200 Oxen, -	8400	0	0			
6 Horſes, - -	72	0	0			
Implements, -	108	0	0			
				8580	0	0

Labour.

Bailiffs and ſhepherd,	170	0	0			
17 men, - -	425	0	0			
Carried over,	595	0	0	11821	0	0

	l.	s.	d.	l.	s.	d.
Brought over,	595	0	0	11821	0	0
Hoeing 100 acres of turnips, - -	50	0	0			
600 cabbages, -	240	0	0			
Filling, *&c.* 4800 chaldron of lime, 9600 loads, at 3 *s.* - -	72	0	0			
30,920 loads, at 5*s.*	386	10	0			
Sowing, - -	20	0	0			
Mowing and harveſting 580 acres, -	58	0	0			
Threſhing 2900 qrs.	145	0	0			
500 acres of hay,	187	10	0			
Sundry labours, -	225	0	0			
				1979	0	0

Seed.

	l.	s.	d.	l.	s.	d.
100 turnips, - -	5	0	0			
600 cabbages, - -	60	0	0			
580 oats, - -	318	2	0			
580 graſſes, - -	580	0	0			
				963	2	0

Sundries.

	l.	s.	d.	l.	s.	d.
34 Horſes, -	340	0	0			
Wear and tear, -	300	0	0			
Tythe, - -	178	0	0			
Intereſt, - -	211	0	0			
Sundries, - -	200	0	0			
				1229	0	0
Diſburſement,				15992	2	0

	l.	s.	d.	l.	s.	d.
Diſburſement, -				15,992	2	0
Product of 1000 ſheep,	500	0	0			
Improvement of ſtock by 650 acres cabbages, 100 turnips, and 500 hay; to, -	13,350	0	0			
2900 qrs. oats, -	1,740	0	0			
				15,590	0	0
Expence, - - -				402	2	0

General Account at the End of the Ninth Year.

	l.	s.	d.
Caſh in hand at the end of the 8th year, - -	23,205	16	9
Diſburſement of the 9th, - -	15,992	2	0
Remains, - -	7,213	14	9
Raiſed on a farm of 480 *l.* a year,	12,000	0	0
Product of the ninth year,	15,590	0	0
Caſh in hand at the end of the 9th year, - -	34,803	14	9

Tenth Year.

This year is to be applied to the forming a plantation of 200 acres, around a part of the eſtate: and farming the hay and oats of the laſt incloſures. For the whole, ſee Plate XI.

Walling,

	l.	*s.*	*d.*
Walling 5 miles, - -	345	0	0
Paring and burning, - -	200	0	0
Lime, 800 chaldron, - -	160	0	0
Ditto, 2000 ditto, - -	400	0	0
Planting, - - -	200	0	0
	1305	0	0

Labour.

	l.	*s.*	*d.*			
Bailiffs and ſhepherd,	170	0	0			
17 men, - -	42	0	0			
Filling, *&c.* 800 chaldron of lime, 1600 loads, at 3 *s.* -	12	0	0			
Ditto 30,920 loads of compoſt, at 5 *s.* -	386	10	0			
Sowing, - -	12	0	0			
Mowing, *&c.* 700 acres,	70	0	0			
Threſhing, 3500 qrs.	175	0	0			
580 acres of hay, -	217	10	0			
				1468	0	0

Seed.

700 oats, - -	413	0	0			
700 graſſes, -	700	0	0			
				1113	0	0

Sundries.

34 Horſes, -	340	0	0			
Wear and tear, -	200	0	0			
Tythe, - -	178	0	0			
Intereſt, - -	211	0	0			
				929	0	0
Diſburſement,				4815	0	0

	l.	s.	d.	l.	s.	d.
Diſburſement, -				4815	0	0
Product of 1000 ſheep,	500	0	0			
Ditto ſold, - -	500	0	0			
580 acres of hay,	870	0	0			
				1870	0	0
Expence, -				2945	0	0

General Account at the End of the Tenth Year.

Caſh in hand at the end of the ninth year, - - -	34,803	14	9
Diſburſement of the tenth, -	4,815	0	0
Remains, - -	29,988	14	9
Raiſed on a farm of 500 *l.* a year,	12,500	0	0
Produce of the tenth, - -	1,870	0	0
	44,358	14	9
Original mortgage, -	5,266	0	0
Caſh in hand at the end of the tenth year, - - -	39,092	14	9

Eleventh Year.

This is applied to making the hay of the laſt incloſed farms. The work muſt be put out to the neighbouring farmers to cart: ſome of the horſes may run at graſs to aſſiſt, and the waggons be kept.

Bailiff,

	l.	s.	d.
Bailiff,	100	0	0
Mowing, making, carting and ſtacking 700 acres at 10*s.*	350	0	0
Tythe,	70	0	0
Diſburſement,	520	0	0
Produce 700 at 30*s.*	1050	0	0
	520	0	0
Balance,	530	0	0

General Account.

	l.	s.	d.
Caſh in hand at the end of the tenth year,	39,092	14	9
Diſburſement of the eleventh,	520	0	0
Remains,	38,572	14	9
Raiſed on 1280*l.* a year,	32,000	0	0
Product of the eleventh,	1,050	0	0
	71,622	14	9

Sale of Stock.

	l.	s.	d.
34 Horſes and implements,	500	0	0
Caſh in hand at the end of the eleventh year,	72,122	14	9
Raiſed on the farms at various times,	80,000	0	0
The above total,	72,122	0	0
Remaining debt,	7,878	0	0

	l.	s.	d.
The farms conſiſt of 3200 acres, beſides 200 acres planted; let at 3200 *l.* a year; valued or ſold at 30 years purchaſe, amounts to, - -	96,000	0	0
Deduct the above debt, -	7,878	0	0
Remains neat profit on the improvement, - -	88 22	0	0
Valued or ſold at 35 years purchaſe, - -	112,000	0	0
Remaining debt, - -	7,878	0	0
Neat profit, - - -	104,122	0	0

Conſidering all the circumſtances of the perfect reparation of the eſtate, the 200 acres planted, it being a limeſtone country, *&c.* this is a moderate calculation.

I have reviewed every particular of the calculation, and from the ſtricteſt attention to all concurring circumſtances, I am convinced, that the advantages attending the improvement of theſe moors are by no means exaggerated. I have charged the expences in a moſt liberal manner—much beyond the truth. And the value of the crops, I found upon thoſe, gained from theſe very moors: but the huſbandry here ſketched, is ſo much more excellent than any I ever yet heard of being applied to moor land, that the crops are lower rated than moderation would have allowed. The ſlighteſt conſideration of a few circumſtances will evince this ſufficiently. The land is almoſt amply limed with the aſhes of the paring——beyond the practice of moſt farmers; and the virtue of the freſh ſoil, the aſhes, and the lime kept in the ſoil by not being exhauſted by ſucceeding crops. Turnips and cabbages the firſt year; then oats, and with thoſe oats, the graſſes: whereas the methods hitherto uſed, have been to take ſeveral crops of corn before laying to graſs, which makes an immenſe difference. Another circumſtance, is the conſtant fold of 1000 ſheep, an object of vaſt importance, for it manures 100 acres *per annum* moſt excellently: next we are to remember, the moſt ample manuring given by compoſts, which amounts throughout all the improvements, to above 40 loads *per* acre. A rich mixture of dung, half as much lime, and an addition of rotten peat earth or virgin mould, this is ſpread on the new graſs.—Such ſpirited management, carried conſiſtently through a whole improvement, has I believe never been ſeen: the expence of it is high, but the profit muſt alſo be great; and undoubtedly would juſtify, upon the whole, a much larger return than I have ſuppoſed.

The concluſions to be drawn from the account, are obvious to the meaneſt capacity: where can any landlord apply himſelf with five thouſand pounds, to make in ſo ſhort a time ſo large a fortune? An hundred thouſand pounds are an object of ſome conſequence to the largeſt fortunes in the kingdom. In what trade, buſineſs or profeſſion, can a ſon be placed that will do greater things for him. Five thouſand pounds are a common younger ſon's portion——if you look into life, what a poor figure is made by them, not for want of a larger original fortune, but for want of an application for it. In the purchaſe of a commiſſion or a place, it buys four or five hundred pounds a year, with an expenſive life annexed, that requires half as many thouſands. Put to common intereſt, the poſſeſſor ſtarves. In trade, it is nothing; as every one knows who has occaſion to place his *gentleman* ſon in a merchant's counting-houſe. The capital is ſcarcely ſufficient for the partner of a ſilk mercer; and little ſuperior to a haberdaſher of ſmall wares. But on the contrary, what immenſe *profit* attends the culture of the earth? and in reſpect to *honour*, where will a more liberal profeſſion be found? Heroes retire to the plough, but never to the counter *.

Where

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* Nothing is here meant in reflection upon trade; I honour it, as every *Briton* ought; but I cannot ſee the propriety of the practice, which every day grows more common, of ſending ſo many lads of quality into the city: ſome, it is true, ſucceed and make fortunes, but it muſt be under the influence of very fortunate circumſtances: from the cradle, they imbibe maxims and ideas totally contrary to that rigid frugality, and contracted ſphere of ideas which are requiſite to *make* a fortune: the buſineſs to which a man is brought up, ought ſurely to be adapted to his birth, his education, and the ſtation of his parents in life. Let a poor *Scotch* lad be turned out of his father's houſe in the Highlands, with ſixpence in his pocket, and the bleſſing.——"There!—Go, make your fortune"—I will bet upon him againſt any of your *other end of the town* gentry; all whoſe advantages, as they are called, are the very rocks on which they ſplit. Suppoſe one of them fails in his aim, what becomes of him? *Why he is my Lord ſuch a one's ſon, he will be made ſomething elſe of*: this idea muſt ever be ſtrong in the lad; and as any profeſſion might probably be more agreeable to him, twenty to one but he takes his meaſures accordingly. But a lad, whoſe grand advancement is to ſweep the counting houſe, gains ground by very ſlow but ſure degrees: induſtry, ſobriety, and frugality are food, raiment and lodging

—he

Where can the landlord who is cramped for money, find ſo ample a reſource? Suppoſe his eſtate mortgaged for ninety-five thouſand pounds, in what other manner is he, by adding for a few years the other 5000 to the debt, to find an undertaking that in 12 years will clear the whole? And I might add, if his waſtes are very extenſive, in a very few years more, put another hundred thouſand in his pocket.

From every light in which I can view the facts on which I have calculated, I have the ſtrongeſt confidence in the moderation of my eſtimates: they undoubtedly are to be realized on prodigious tracts of moors, which are in ſo many places to be met with, under ſimilar circumſtances to thoſe which I have deſcribed: nothing is wanting but reſolution in their poſſeſſors to enjoy much greater advantages than any I have ſtated. But *ready money* muſt be appropriated to the work, not income, or ſums dependent on income.

—he has no reſource. Can human nature admit of ſtronger principles to direct the actions of mankind: the fortune of ſuch a lad is indubitable. Men of education and ideas can never rival them: it is an attempt againſt nature.

Before the ſubject is well conſidered, ſome objections may poſſibly be made on the ſcore of the *extent* of ſome of the annual improvements: it may perhaps be thought difficult to procure the requiſite number of hands of all ſorts: but whoever will reflect on the matter with a little attention, will be convinced of the contrary. This point is one grand reaſon for my being ſo very particular in recommending a ſtrict determination to improve freſh land every year, to make no gap in the undertaking: this has been done more than once by improvers, the loſs attending it is always great, and in ſuch large undertakings as I have recommended, would, in the reſpect I am now treating of, be fatal. If you want five hundred labourers, two hundred builders, *&c.* all to go to work at once, every man muſt be ſenſible of the impoſſibility of getting them: if you want but fifty of a ſort to be at work only in a certain month, the like difficulty may be found. Theſe are not the inquiries, becauſe it is not the plan of operation: I every where on this and other accounts, have recommended to increaſe the works gradually: there is no moor to be found, where I could not in one year, and at the proper ſeaſons, improve the quantity of 120 or 160 acres:—but if I could do only 100 or even 80, the objection would be obviated; for the next year, whatever the quantity be, I would engage to double it.

In undertakings of this ſort, hands increaſe every hour; a little reputation of high wages, will make them flock from all parts, as they every where do to take work of commiſſioners of turnpikes, navigations, *&c.* many of whom expend in a ſingle ſeaſon much greater ſums than any I have ſuppoſed. Thus I have allowed 20*s.* an acre for paring and burning, inſtead of 16*s.* 6*d.*; that difference would bring all the parers within 20 miles to you.

But the grand object is regular employment. Take all hands that offer, and keep them the year round, and you need not fear having your number. In the improvements I have ſketched, there is employment the whole year. Take, for inſtance, the laſt article of incloſure, which is 700 acres in one year; the buildings are 560*l.* a ſum and an article that has no difficulty; the paring, burning and draining are 1100 *l.* : thoſe works are thoſe of the laſt for winter, the firſt for ſpring: walling 621 *l.* is done either in the winter, or the preceding ſummer, here are 1721 *l.* Then comes the article *Labour* of 1979 *l.* which is nine-tenths ſummer work ſucceeding the other; ſo that the ſame number of labourers may be kept conſtantly employed: this is ever an advantage in the rate of the work.

The employing a great many hands at once, much attracts others; all workmen are fond of contracting with a man who employs a great number; there is a cheerfulneſs in ſuch a farm which captivates them uncommonly: the reputation of it, with the ability of making great earnings by contract working, will always enable an improver to break up whatever land he pleaſes: the employment of 100 men this year, will ſecure to him that of 200 the next; 300 the third; 500 the fourth and ſo on: and for the truth of this, I appeal to all men who have had the conduct of publick works, that have required great numbers of working hands. But let a gap be made but for one year, that is, the increaſe of land diſcontinued, and conſequently the wallers, parers, drainers, lime-burners, &c. diſcharged—whatever deſire the gentleman may have to renew his undertaking the year following, it will be in vain; inſtead of 700 acres he muſt content himſelf perhaps with a ſixth part; that is, his work is to do over again; his hands to collect gradually as at firſt. All objections therefore, that can ariſe from a want of hands for executing the improvements I have propoſed, have no weight, unleſs the improver commit great miſtakes. All the complaints that are generally heard on this head, relate only to the *price* of the labour; or come from thoſe who have only an *irregular* employment: which have nothing to do with the preſent enquiry.——Many a time, in the conduct of my own farm, have I been diſtreſſed even for a ſingle man, whereas I have ſoon after had ſcores at my command: the more men I have employed, (and I have often had from 20 to 40 at work) the more I have univerſally been able to get.

Another circumſtance relative to very large undertakings, is the finding extent of waſte land ſufficient; but this objection can ariſe only from thoſe who have not viewed the moor counties attentively. The ſingle county of *Northumberland* contains above 600,000 acres of moor land. The tracts in *Weſtmorland*, *Cumberland*, *Durham*, and *Yorkſhire*, are alſo immenſe. *Derbyſhire* is full of them. There are not in thoſe counties ſhort of 3,000,000 of acres of moors, and much the greateſt part that yields *no rent*. This may truly be called an AMPLE field for improvement.

No man who wiſhes well to his country, can view ſuch tracts of improvable land, without grieving at the want of ſpirit in their poſſeſſors. Private profit co-operates ſo greatly with publick good, that it is amazing the few improvers have not had more imitators.

LETTER X.

HAVING ſtated the preceding facts relative to the improvement of moors; I ſhall, in the next place, offer ſome remarks on the improvement of another ſort of waſte land, but too common in different parts of the kingdom: the ſort I mean, are the very dry ſoils, which from ſuppoſed barrenneſs yield nothing but ſheep feed; or applied to that of rabbits: there are many variations in them, but not important enough each to demand a ſeparate conſideration: the two grand diviſions are into ſoils that are over a ſtratum of marle, fat chalk, or clay; and others that have not ſuch advantages. I ſhall begin with the latter.

Of theſe the principal tracts which I have viewed, are the wolds in *Yorkſhire*, ſome of the plains in *Wiltſhire*, and ſome of the heaths in *Norfolk*, *Suffolk* and *Cambridgeſhire*; with many other tracts of the ſame kind in various parts of the kingdom.

Many of theſe waſtes are on limeſtone; but it is obſervable, that experience gives us no very great encouragement to uſe lime on *all* limeſtone lands: upon moors, which abound with ling and black earth, it is not only expedient, but abſolutely neceſſary; but the ſoil is utterly different, from the light, thin, limeſtone loam, or looſe hazel mould, that is generally found in the countries in queſtion: no concluſion of this ſort is to be taken as univerſal; there certainly are tracts where lime is adviſeable, but particular exceptions would lead me into too minute a diſcuſſion. I ſhall not therefore notice any improvement by lime.

If from experience we recur to reaſon, I think the obſervation will ſtand good; lime ſhould never be applied to poor ſoils, without their being otherwiſe well manured; for as it acts as a ſtimulus to force the ſoil to yield its nouriſhment, it will reduce poor land to a *caput mortuum:* now the wolds and downs I ſpeak of, are poor, and many of them thin; lime, therefore, certainly muſt be improper; but in the moors, of which I before treated, the caſe is totally different: the ſoil in reality is a deep

dunghill,

dunghill, poſſeſſing vaſt ſtores of fertility, of which it only wants to be delivered; ſo that lime is neceſſary in this caſe, upon the very ſame principles that it is hurtful in the other. But on the contrary, marle, clay and chalk of the right kind, are of uncommon benefit to theſe dry ſoils, as has been experienced in moſt parts of the kingdom.

Another point previouſly to be conſidered, is the method of breaking them up: in all the moorlands, I have recommended that of paring and burning without limitation, and for the beſt of all reaſons, the reſult of various and continued experience; but in reſpect to the lands in queſtion, the point is by no means ſo clear; we have not the ſame valuable experiments for our guide. In ſome of theſe wolds and downs the ſoil is extremely thin; now, *ſuppoſing* the idea of paring and burning rendering the ſtaple thinner to be true, then it muſt be improper; but this has never been proved: another circumſtance, is the nature of it, relative to its being burnt; the moors are compoſed to a conſiderable depth of roots, of vegetables, even to being quite matted with them; the aſhes are in great quantities, and of a moſt fertilizing nature; but the turf of the light ſoils now in queſtion, is in general a mere turf, that is, the roots of the graſs alone, which, from the looſe thinneſs of the ſoil, forms but a ſmall quantity of aſhes, and thoſe not of equal virtue. But in all this, I pretend to nothing more than reaſoning; facts *may* be againſt me. But as paring and burning is uſed advantageouſly on ſome light ſoils, I think it ſhould not, in theſe calculations, be totally omitted: for which reaſon, I ſhall vary the ſuppoſition, and propoſe that all waſtes of this ſort, that are much occupied with other ſpontaneous growths, beſides graſs, ſuch as whins, broom, fern, *&c.* be pared and burnt; and that ſuch as are plain ſheep walks, yielding only a turf, be broke up by mere ploughing. This diſtinction, I think, is reaſonable; in the firſt, the great quantity of roots will form many rich aſhes, and at the ſame time the operation prepare the land for the plough; whereas, in the latter caſe, one of theſe advantages is not wanting, and the other does not exiſt.

In theſe improvements, as in thoſe of the moors, I recommend to landlords to become farmers, no further than requiſite for *improvement :* that is, bringing the land into ſuch a ſtate, that farmers will hire it. Purſuant to which idea, it is neceſſary, as before, to incloſe a farm every year, and to let one every year, when once the rotation comes in courſe.

The grand improvement I ſhall propoſe for theſe dry ſoils, is ſainfoine ; and herein I offer nothing that has not ſucceeded very greatly already on the ſame ſoil, under the conduct of ſpirited improvers in ſome parts, and is actually common huſbandry in other tracts. In the weſt of *England*, it is in every common farm, but throughout the north, it is generally unknown ; but I am particularly fortunate in this point, for the experiments of Sir *Digby Legard*, upon this culture, are ſo perfectly ſatisfactory, that they furniſh me with *data* too clear to be diſputed. They are as follow :

The wold land unincloſed, lets at 1 *s.* *per* acre ; incloſed and laid to ſainfoine, at 10 *s.*

Incloſing with ſtone walls 6 *s.* *per* rood of 7 yards. Building a tiled barn of three bays 45 feet long, 15 broad and 10 high to the ſquare, of ſtone and fir timber, 35 *l.* Buildings for a farm of 200 acres and two cottages 200 *l.*

There are in many parts of *England* ſainfoine farms, but I think it more adviſeable, to have a portion of arable to each farm, to ſave the ſainfoine hay in winter; the uſe the crop is moſtly put to, (where all is not made into hay) is the feeding cows; ſome very conſiderable dairies are fed totally on it. In every farm, I ſhall ſuppoſe, one-third arable, and two-thirds ſainfoine; the cattle kept by the latter will manure the former, ſo as to yield very beneficial crops of turnips and barley alternately. Of the former, three quarters *per* acre; and the latter worth 30 *s.* an acre, fed on the land, which is the account of Sir *Digby* himſelf: ſuch farms are very deſireable ones, and cannot fail of being very profitable to the occupiers.

Firſt Year.

The firſt farm I ſhall ſuppoſe to be incloſed, is 150 acres in three fields of 50 each.

	l.	*s.*	*d.*
Buildings, - - - -	160	0	0
Walling 2 miles and an half, at 6 *s.* a rood, - - -	188	3	6
Gates, *&c.* - -	2	0	0
	350	3	6

Stock.

	l.	*s.*	*d.*			
Six horſes, - -	72	0	0			
500 ſheep, -	250	0	0			
A waggon, - -	20	0	0			
A cart, - -	12	0	0			
3 ploughs, -	10	0	0			
3 pair of harrows, -	5	0	0			
Harneſs and ſundry other implements, -	15	0	0			
				384	0	0

Labour.

Ploughing 150 acres three times, at 1 *s.* -	22	10	0			
Shepherd, - -	20	0	0			
Harrowing twice, at 1½ *d.*	1	15	0			
Sowing 150 acres of turnips, - -	0	17	6			
Hoeing 150 acres, at 10 *s.*	75	0	0			
Sundry labour, -	20	0	0			
				140	2	0
Carried over,				874	5	6

	l.	s.	d.
Brought over,	874	5	6

Seed.

	l.	s.	d.
150 acres turnips, - -	7	10	0

Sundries.

	l.	s.	d.	l.	s.	d.
Keeping 6 horſes, -	60	0	0			
Wear and tear, -	10	0	0			
Rent, tythe, and town charges, - -	12	0	0			
Ditto 500 acres ſheep walk, -	26	0	0			
Unſpecified demands,	30	0	0			
				138	0	0
Diſburſement, -				1019	15	6
Product of 500 ſheep,	250	0	0			
100 acres of turnips, -	150	0	0			
				400	0	0
Expence, -				619	15	6

In this country, the waſte being let, we muſt ſuppoſe an acre kept to every ſheep in the flock for their walk, and they charged accordingly: I ſuppoſe then turnips to go but half as far as the moor ones, in the winter maintenance of the flock; for the crop will by no means equal thoſe.

Second Year.

150 acres more to be taken in this year, in the ſame manner as before, only with the addition of a plantation of 20 acres on one ſide the farm.

	l.	*s.*	*d.*
Buildings,	160	0	0
Planting,	20	0	0
Walling 3 miles, and gates, &*c.*	228	16	3
Forming 3 ponds,	150	0	0
	558	16	3

Stock.

	l.	*s.*	*d.*			
2 Horſes,	24	0	0			
Cart,	12	0	0			
Harneſs, plough and harrows, &*c.*	10	0	0			
				46	0	0

Labour.

Ploughing 150 acres thrice,	22	10	0			
Harrowing twice, at 1½*d.*	1	15	0			
Sowing 450 acres,	2	12	6			
Hoeing 150 acres,	75	0	0			
Ploughing firſt 150 acres thrice,	22	10	0			
Harrowing,	1	15	0			
Rolling,	0	10	0			
Carried over,	126	12	6	604	16	3

	l.	s.	d.	l.	s.	d.
Brought over,	126	12	6	604	16	3
Mowing and harveſting 150 acres of barley, at 5s. - -	37	10	0			
Threſhing 450 qrs. of barley, at 1 s. -	22	10	0			
Sundry labours, -	40	0	0	226	12	6

Seed.

	l.	s.	d.	l.	s.	d.
150 Turnips, -	7	10	0			
150 barley, at 8s. -	60	0	0			
100 ſainfoine, at 10 s.	50	0	0	117	10	0

Sundries.

	l.	s.	d.	l.	s.	d.
8 Horſes, - -	80	0	0			
Wear and tear, -	40	0	0			
Rent, &c. of 800 acres,	60	0	0			
Unſpecified demands, -	50	0	0	230	0	0
Diſburſement, -				1178	18	9
Product of 500 ſheep,	250	0	0			
100 acres of turnips,	150	0	0			
450 qrs. of barley, at 16s. - -	360	0	0	760	0	0
Expence, -				418	18	9

The ponds charged in this account for the two farms, are an heavy expence, and peculiar only to thoſe wolds that are without water; the plantation is likewiſe to be charged now and then to a farm, in purſuance of the recommendation of the ſame excellent huſbandman, who furniſhes me with the reſt of theſe data. Such articles ſhould be allowed, though not abſolutely neceſſary, becauſe if the profit of the improvement will not pay the coſt of ſuch at preſent, for the great advantage of them in future, it has little merit.

Third Year.

The addition this year to be the ſame as before, the management alſo alike: the ſainfoine all to be mown for hay, and the 50 acres not ſown to be cropped with turnips.

	l.	*s.*	*d.*
Buildings, - - -	160	0	0
Walling, *&c.* - -	228	16	3
Planting, - - - -	30	0	0
Two ponds, - - -	100	0	0
	518	16	3

	l.	*s.*	*d.*	*l.*	*s.*	*d.*
Brought over, -				518	16	3
Stock.						
4 Horſes, - -	50	0	0			
Implements, - -	40	0	0			
				90	0	0
Labour.						
Ploughing 1050 acres,	52	10	0			
Harrowing, - -	8	0	0			
Rolling, - -	2	0	0			
Sowing 500, -	3	5	0			
Hoeing 200 acres of turnips, - -	100	0	0			
Mowing and harveſting 150 acres of barley, at 5*s.*	37	10	0			
Threſhing 450 qrs. -	22	10	0			
Mowing, making, carting, and ſtacking 100 acres ſainfoine, - -	50	0	0			
Carting manure, -	6	0	0			
Sundry labours, -	30	0	0			
				311	15	0
Seed.						
200 Turnips, - -	10	0	0			
150 barley, - -	60	0	0			
100 ſainfoine, -	50	0	0			
				120	0	0
Carried over, -				1040	11	3

				l.	s.	d.
Brought over,				1040	11	3
Sundries.						
	l.	s.	d.			
12 Horſes, - -	120	0	0			
Wear and tear, -	50	0	0			
Rent, &c. of 970 acres,	70	0	0			
Unſpecified demands,	50	0	0			
				290	0	0
Diſburſement, -				1330	11	3
Product of 500 ſheep,	250	0	0			
150 acres of turnips,	225	0	0			
450 qrs. of barley, -	360	0	0			
100 acres of ſainfoine hay,	125	0	0			
				960	0	0
Expence, -				370	11	3

It is requiſite to keep the firſt farm in hand, till the ſainfoine has been once mown, that the ſtate of the crop may be known. It rarely fails on dry ſoils, but that knowledge is by no means ſufficient to let a farm: I do not ſuppoſe cattle bought in to feed the hay or the turnips, till they become a regular ſupply of both, and in all countries of this nature winter food is ever ready money: I have charged a very low value for the ſainfoine, but it is not in perfection the firſt year.

General Account at the End of the Third Year.

Diſburſement of the firſt year, -				1019	15	6
Ditto the ſecond, -	1178	18	9			
Intereſt of 1019 *l.* - -	40	10	0			
	1219	8	9			
Product of the firſt,	400	0	0			
				819	8	9
Diſburſement of the third, - -	1330	11	3			
Intereſt of 1840 *l.* -	73	10	0			
	1404	1	3			
Product of the ſecond,	760	0	0			
				644	1	3
Total ſum requiſite for the improvement, - - - -				2483	5	6
Product of the third year, -				960	0	0
Raiſed on a farm of 75 *l.* a year,				1800	0	0
Caſh in hand at the end of the third year, - -				2760	0	0

Fourth Year.

I ſhall ſuppoſe a farm as before of 150 acres taken in this year; and a plantation of 10. Management, the ſame.

	l.	*s.*	*d.*
Buildings, - - -	160	0	0
Walling, *&c.* - - -	228	16	3
Planting, - - -	30	0	0
A pond, - - -	50	0	0
	468	16	3

	l.	s.	d.	l.	s.	d.
Brought over, -				468	16	3
Stock.						
To eat the turnips and hay, -				300	0	0
Labour.						
Ploughing, -	52	10	0			
Harrowing and rolling,	10	0	0			
Sowing, - -	3	10	0			
Hoeing 200 acres of turnips, - -	100	0	0			
Mowing, *&c.* 150 acres of barley, -	37	10	0			
Threſhing 450 qrs.	22	10	0			
100 acres ſainfoine, -	50	0	0			
Carting, *&c.* manure,	20	0	0			
Shepherd, - -	20	0	0			
Sundry labour, -	20	0	0			
				336	0	0
Seed.						
The ſame as leaſt year, - -				120	0	0
Sundries.						
12 Horſes, - -	120	0	0			
Wear and tear, -	50	0	0			
Rent, *&c.* - -	70	0	0			
Unſpecified articles, -	50	0	0			
Intereſt of 2480 *l.* -	100	0	0			
				390	0	0
Dſburſement, -				1614	16	3
Product of 500 ſheep,	250	0	0			
Improvement of ſtock by 150 acres of turnips and 100 of hay,	637	10	0			
Carried over,	887	10	0			

	l.	s.	d.	l.	s.	d.
Diſburſement, - -				1614	16	3
Brought over, -	887	10	0			
450 qrs. barley, -	360	0	0			
				1247	10	0
Expence, -				367	6	3

General Account at the End of the Fourth Year.

Caſh in hand at the end of the third year, - - -	2760	0	0
Diſburſement of the fourth, -	1614	16	3
Remains, -	1145	3	9
Raiſed on a farm of 75 *l.* a year,	1800	0	0
Product of the fourth year,	1247	10	0
Caſh in hand at the end of the fourth year, - - - -	4192	13	9

Fifth Year.

This year I ſhall ſuppoſe a farm of 300 acres added to the cultivated land, and likewiſe a plantation of 40. The former arrangement of the lands into ſainfoine, and arable for barley, and turnips will be continued.

Buildings,

	l.	s.	d.
Buildings, - - -	300	0	0
Walling $5\frac{1}{2}$ miles, *&c.* -	400	0	0
Planting, - - - -	100	0	0
Ponds, - - - -	100	0	0
	900	0	0

Stock.

	l.	s.	d.
To eat the turnips and hay, -	600	0	0

Labour.

	l.	s.	d.	l.	s.	d.
Ploughing 500 acres thrice, - -	75	0	0			
Harrowing and rolling,	13	0	0			
Sowing, - -	5	0	0			
Hoeing 350 acres of turnips, - -	175	0	0			
Mowing and harveſting 150 acres of barley,	37	10	0			
Threſhing 450 qrs. -	22	10	0			
100 acres ſainfoine, -	50	0	0			
Carting, *&c.* manure,	30	0	0			
Sundry labour, -	60	0	0			
Shepherd, - -	20	0	0			
				488	0	0

Seed.

350 Turnips, -	17	10	0			
150 barley, - -	60	0	0			
100 ſainfoine, -	50	0	0			
				127	10	0
Carried over,				2115	10	0

	l.	s.	d.
Brought over, -	2115	10	0

Sundries.

	l.	s.	d.	l.	s.	d.
Horſes, wear and tear, and intereſt, -	270	0	0			
Rent, *&c.* -	80	0	0			
Unſpecified demands,	50	0	0			
				400	0	0
Diſburſement, -				2515	10	0
Product of 500 ſheep,	250	0	0			
Improvement of ſtock, by 300 acres of turnips, and 100 of hay,	1162	10	0			
450 qrs. barley, -	360	0	0			
				1772	10	0
Expence, -				743	0	0

General Account at the End of the Fifth Year.

	l.	s.	d.
Caſh in hand at the end of the fourth year, - -	4192	13	9
Diſburſement of the fifth, -	2515	10	0
Remains, -	1677	3	9
Raiſed on a farm of 75*l.* a year,	1800	0	0
Product of the fifth year, -	1772	10	0
Caſh in hand at the end of the fifth year, - - - -	5249	13	9

Sixth Year.

Two farms each of 225 acres; and a plantation of 30, to be taken in this year.

	l.	s.	d.
Buildings,	400	0	0
Walling 6 miles,	460	0	0
Planting,	50	0	0
Ponds,	200	0	0
	1110	0	0

Stock.

	l.	s.	d.			
4 Horſes,	48	0	0			
Implements,	50	0	0			
Stock to eat the turnips and hay,	1000	0	0			
				1098	0	0

Labour.

A bailiff,	60	0	0			
Shepherd,	20	0	0			
Ploughing 800 acres thrice,	120	0	0			
Harrowing, &c.	25	0	0			
Sowing,	10	0	0			
Hoeing 500 acres turnips,	250	0	0			
Mowing and harveſting 300 acres of barley,	75	0	0			
Threſhing 900 qrs. of barley,	45	0	0			
100 acres ſainfoine,	50	0	0			
Carting manure,	50	0	0			
Sundry labour,	100	0	0			
				805	0	0
Carried over,				3013	0	0

	l.	s.	d.	l.	s.	d.
Brought over,				3013	0	0

Seed.

	l.	s.	d.			
500 Turnips, -	25	0	0			
300 barley, -	120	0	0			
200 ſainfoine, -	100	0	0			
				245	0	0

Sundries.

16 Horſes, -	160	0	0			
Wear and tear, -	80	0	0			
Rent, *&c.* - -	90	0	0			
Unſpecified articles,	100	0	0			
Intereſt, - -	100	0	0			
				530	0	0
Diſburſement, -				3788	0	0
Product of 500 ſheep,	250	0	0			
Improvement of ſtock by 450 acres of turnips, and 100 of hay,	1787	10	0			
900 qrs. barley, -	720	0	0			
				2757	10	0
Expence, -				1030	10	0

General Account at the End of the Sixth Year.

	l.	*s.*	*d.*
Caſh in hand at the end of the fifth year, - - - - -	5249	13	9
Diſburſement of the ſixth, -	3788	0	0
Remains, - -	1461	13	9
Raiſed on a farm of 75 *l.* a year,	1800	0	0
Product of the ſixth, - -	2757	10	0
Caſh in hand at the end of the ſixth year, - - -	6019	3	9

Seventh Year.

Two farms to be added of 300 acres each, and a plantation of 40 acres: but in theſe I ſhall ſuppoſe a variation; that of laying down of the laſt year's incloſures, three-fourths inſtead of two-thirds to ſainfoine.

	l.	*s.*	*d.*
Buildings, - - -	600	0	0
Walling 9 miles, *&c.* -	690	0	0
Planting, - - -	60	0	0
Ponds, - - -	200	0	0
	1550	0	0

Stock.

	l.	s.	d.	l.	s.	d.
Brought over,				1550	0	0
Stock.						
To eat the turnips and hay,	1500	0	0			
2 horſes,	24	0	0			
Implements,	50	0	0			
				1574	0	0
Labour.						
Bailiff and ſhepherd,	80	0	0			
Ploughing 1150 acres thrice,	162	10	0			
Harrowing, &c.	35	0	0			
Sowing,	15	0	0			
Hoeing 700 acres of turnips,	350	0	0			
450 acres of barley,	112	10	0			
Threſhing 1350 qrs.	67	10	0			
200 acres ſainfoine,	100	0	0			
Carting, &c. manure,	80	0	0			
Sundry labour,	200	0	0			
				1202	10	0
Seed.						
700 Turnips,	35	0	0			
450 barley,	180	0	0			
340 ſainfoine,	170	0	0			
				385	0	0
Carried over,				4711	10	0

	l.	s.	d.	l.	s.	d.
Brought over,				4711	10	0
Sundries.						
18 horſes, -	180	0	0			
Wear and tear, -	100	0	0			
Rent, *&c.* -	110	0	0			
Intereſt, - -	100	0	0			
Unſpecified demands,	100	0	0			
				590	0	0
Diſburſement, -				5301	10	0
Product of 500 ſheep,	250	0	0			
Improvement of flock by 650 acres of turnips, and 250 hay,	2700	0	0			
1350 qrs. barley, -	1080	0	0			
				4030	0	0
Expence, -				1271	10	0

General Account at the End of the Seventh Year.

	l.	s.	d.
Caſh in hand at the end of the ſixth year, - - - -	6019	3	9
Diſburſement of the ſeventh,	5301	10	0
Remains, -	717	13	9
Raiſed on a farm of 150 *l.* a year,	3600	0	0
Product of the ſeventh year, -	4030	0	0
Caſh in hand at the end of the ſeventh year, - -	£. 8347	13	9

Eighth Year.

Nine hundred acres this year, added in three farms of 300 each, and 120 acres planted.

	l.	s.	d.
Buildings, - - -	900	0	0
Walling, &c. 13½ miles, -	1040	0	0
Planting, - - -	250	0	0
Ponds, - - - -	400	0	0
	2590	0	0

Stock.

	l.	s.	d.	l.	s.	d.
12 horſes, - -	144	0	0			
Implements, -	300	0	0			
To eat the turnips and hay, - -	2000	0	0			
				2444	0	0

Labour.

	l.	s.	d.	l.	s.	d.
Bailiff and ſhepherd,	120	0	0			
Ploughing 1500 acres,	225	0	0			
Harrowing, -	34	0	0			
Sowing, - -	20	0	0			
Hoeing 1012 acres of turnips, - -	506	0	0			
Mowing and harveſting 600 acres of barley,	150	0	0			
Threſhing 1800 qrs. of barley, -	90	0	0			
340 acres ſainfoine,	170	0	0			
Carting, &c. manure,	80	0	0			
Sundry labours, -	200	0	0			
				1595	0	0
Carried over, -				6629	0	0

	l.	s.	d.	l.	s.	d.
Brought over, -				6629	0	0
Seed.						
	l.	s.	d.			
1012 turnips, -	50	12	0			
600 barley, - -	240	0	0			
450 ſainfoine, -	225	0	0	515	12	0
Sundries.						
30 horſes, - -	300	0	0			
Wear and tear, -	150	0	0			
Rent, &c. of 2700 acres, plantations included,	160	0	0			
Intereſt, - -	100	0	0			
Unſpecified demands,	200	0	0	910	0	0
Diſburſement, -				8014	12	0
Product of 500 ſheep,	250	0	0			
Improvement of ſtock by 962 acres of turnips, and 340 of hay,	3825	0	0			
1800 qrs. barley,	1440	0	0	5515	0	0
Expence, -				2499	12	0

General Account at the End of the Eighth Year.

	l.	s.	d.
Caſh in hand at the end of the 7th year, - - -	8347	13	9
Diſburſement of the eighth year,	8014	12	0
Remains, -	333	1	9
Raiſed on a farm of 225*l.* a year,	5400	0	0
Product of the eighth year, -	5515	0	0
Caſh in hand at the end of the 8th year, - - -	11248	1	9

Ninth Year.

Three farms each of 300 acres, and one of 150; with 150 of plantation to be added this year, in all 120 acres. The eſtate will then lie as in Plate XII.

	l.	s.	d.
Buildings, - - -	1060	0	0
Walling, &c. 17 miles, -	1279	5	0
Planting, - - - -	500	0	0
Ponds, - - -	500	0	0
	3339	5	0

	l.	s.	d.	l.	s.	d.
Brought over, -				3339	5	0
Stock.						
	l.	s.	d.			
6 horſes, - -	72	0	0			
Implements, -	150	0	0			
To eat the turnips, &c.	2500	0	0			
				2722	0	0
Labour.						
Bailiff and ſhepherd,	120	0	0			
Another bailiff, -	50	0	0			
Ploughing 2100 acres thrice, - -	315	0	0			
Harrowing, &c. -	50	0	0			
Sowing, - -	25	0	0			
Hoeing 1200 acres of turnips, - -	600	0	0			
Mowing, &c. 900 acres of barley, - -	225	0	0			
Threſhing 2700 qrs.	135	0	0			
450 acres ſainfoine, -	225	0	0			
Carting manure, &c.	100	0	0			
Sundries, - -	200	0	0			
				2045	0	0
Seed.						
1200 turnips, -	60	0	0			
900 barley, -	360	0	0			
675 ſainfoine, -	337	10	0			
				757	10	0
Carried forward,				8863	15	0

	l.	s.	d.	l.	s.	d.
Brought forward,				8863	15	0
Sundries.						
36 horſes, -	360	0	0			
Wear and tear, -	200	0	0			
Rent, *&c.* of 3450 acres,	190	0	0			
Intereſt, - -	100	0	0			
Unſpecified demands,	200	0	0			
				1050	0	0
Diſburſement, -				9913	15	0
Product of 500 ſheep,	250	0	0			
Implements of ſtock by 1150 acres of turnips, and 450 of hay, -	4731	0	0			
2700 qrs. barley, -	2160	0	0			
				7141	0	0
Expence, -				2772	15	0

General Account at the End of the Ninth Year.

	l.	s.	d.
Caſh in hand at the end of the 8th year, - - -	11,248	1	9
Diſburſement of the 9th, -	9,913	15	0
Remains, -	1,334	6	9
Raiſed on 300 *l.* a year, -	7,500	0	0
Product of the ninth year, -	7,141	0	0
	15,975	6	9

	l.	s.	d.
	15,975	6	9
Original mortgage, - -	2,483	5	6
Caſh in hand at the end of the 9th year, - - -	13,492	1	3

Tenth Year.

I now ſuppoſe the increaſe of land to ſtop; this year is therefore only to be applied to the continuation of the culture of that before taken in.

Labour.

	l.	s.	d.	l.	s.	d.
Ploughing 1050 acres thrice, - -	157	10	0			
Ditto 150 acres,	22	10	0			
Harrowing, *&c.* and ſowing, -	30	0	0			
150 acres of turnips,	75	0	0			
Mowing, *&c.* 1050 acres of barley, - -	262	10	0			
Threſhing 3150 qrs.	157	10	0			
750 acres of ſainfoine,	375	0	0			
Carting manure, *&c.*	80	0	0			
Bailiff and ſhepherd,	120	0	0			
				1280	0	0
Carried over,				1280	0	0

	l.	s.	d.	l.	s.	d.
Brought over, -				1280	0	0

Seed.

	l.	s.	d.	l.	s.	d.
1050 barley, -	420	0	0			
786 ſainfoine, -	393	0	0	813	0	0

Sundries.

	l.	s.	d.	l.	s.	d.
36 horſes, - -	360	0	0			
Wear and tear, -	150	0	0			
Rent, *&c.* of 2850 acres,	165	0	0			
Unſpecified demands,	100	0	0	775	0	0
Diſburſement, -				2868	0	0
Product of 500 ſheep,	250	0	0			
3150 qrs. barley, -	2520	0	0			
150 acres turnips, -	225	0	0			
750 acres ſainfoine, -	843	12	6	3838	12	6
Diſburſement, - -				2868	0	0
Balance, -				970	12	6

General Account at the End of the Tenth Year.

	l.	s.	d.
Caſh in hand at the end of the ninth year, - - -	13492	1	3
Diſburſement of the tenth, -	2868	0	0
Remains, - - -	10624	1	3

	l.	*s.*	*d.*
Brought over, -	10,624	1	3
Raiſed on a farm of 450 *l.* a year,	11,200	0	0
Product of the tenth year, -	3,613	12	6
Caſh in hand at the end of the tenth year, - - -	25,437	13	9

Eleventh Year.

The only buſineſs of this year, is to mow the laſt crop of ſainfoine. The account as follows :

	l.	*s.*	*d.*	*l.*	*s.*	*d.*
Bailiff and ſhepherd,	120	0	0			
786 acres of ſainfoine,	393	0	0			
Sundries, - -	50	0	0			
262 turnips, ploughing thrice and hoeing, &c.	170	0	0			
				733	0	0

Sundries.

	l.	*s.*	*d.*	*l.*	*s.*	*d.*
20 horſes, -	200	0	0			
Wear and tear, -	50	0	0			
Rent, &c. of 190 acres,	120	0	0			
Unſpecified articles, -	50	0	0			
				420	0	0
Diſburſement, - - -				1153	0	0

	l.	*s.*	*d.*	*l.*	*s.*	*d.*
Product of 500 ſheep,	250	0	0			
786 acres of ſainfoine,	884	5	0			
262 turnips, -	393	0	0			
				1527	5	0
Diſburſement, -				1153	0	0
Balance, - -				374	5	0

General Account at the End of the Eleventh Year.

	l.	*s.*	*d.*
Caſh in hand at the end of the tenth year, -	25,437	13	9
Raiſed on 525 *l* a year,	13,000	0	0
Product of the eleventh, -	1 527	5	0
	39,964	18	9
Sale of ſtock and implements, -	800	0	0
Caſh in hand at the end of the eleventh year, - -	£ 40,764	18	9
Raiſed on the farms at various times, - - -	47,900	0	0
The above total, - -	40,764	0	0
Remains a debt of, - -	7,136	0	0

	l.	s.	d.
The farms conſiſt of 3900 acres, let at, - - -	1,950	0	0
Beſides 400 planted, in all 4300 acres, formerly let at, - -	215	0	0
	1,735	0	0
Remains clear annual rent, which valued or ſold at 30 years purchaſe, amount to, -	52,050	0	0
Remaining debt, - -	7,136	0	0
Neat profit on the improvement, beſides plantations of 400 acres,	44 914	0	0

The profit upon theſe improvements is extremely great; and yet I have in no article ſtated any expence below the truth; that is the data, furniſhed by one of the moſt accurate of cultivators; on the contrary, I have in moſt inſtances exceeded them; and every year allowed very conſiderable ſums for unſpecified and accidental expences; in regard to the value of the crops, I follow the ſame authority in every particular, except the firſt crop of ſainfoine: the rent is 10 *s.* and the common product a ton of hay, beſides the after ſeed; now, from theſe circumſtances, I calculate the firſt year's produce at 1 *l.* 2 *s.* 6 *d.* which is ſurely as moderate as poſſible. The feeding every year ſuch a vaſt ſtock of cattle, raiſes a prodigious quantity of dung, which, as well as the ſheep-fold, I ſuppoſe applied to the manuring ſuch parts of the farms as are left arable, and which cannot fail of rendering them worth the rent of 10 *s.* as well as the ſainfoine.

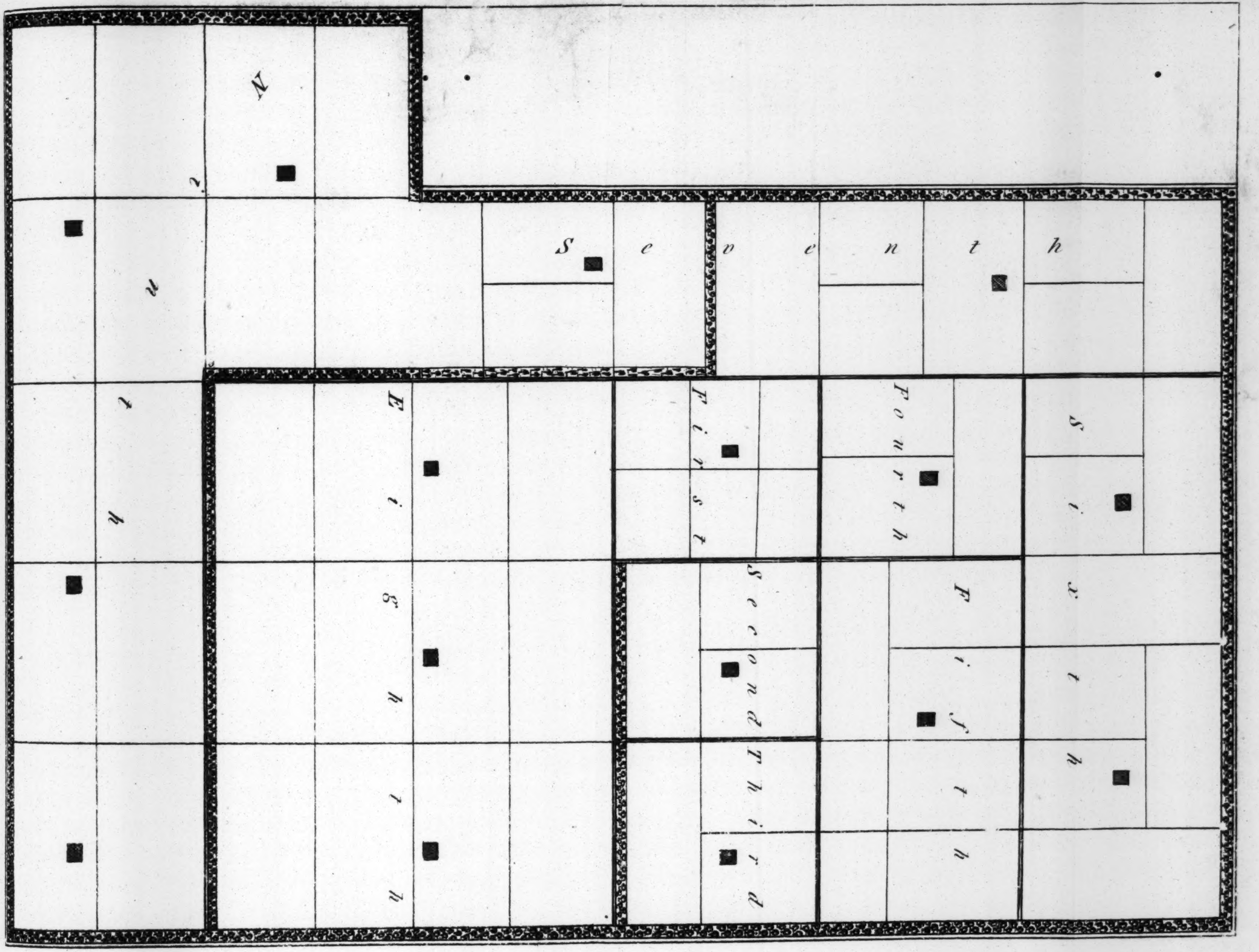
But in all undertakings of this kind, candour requires, that every circumſtance againſt, as well as for an improvement, ſhould be diſcuſſed: relative to the preſent ſort, there are two points, which render the general buſineſs more complicated, than the ſame work in thoſe countries that admit being laid to natural graſſes; the firſt is the accidental failure of the ſainfoine ſeeds, by which the improver is obliged to keep the land longer in his hands, that he may have time to ſow again: when the conduct is good, and the ſeed the ſame, this will happen very rarely; but as it certainly is poſſible, much more than in the laying land to natural graſſes, it ſhould be here conſidered; for it would be very random work, to calculate the caſe in the preceding eſtimates.

When the improver has found, that the ſeed has failed, which can never be till the ſpring after the barley is cut, he muſt not ſtop his annual improvements, for numerous reaſons before given, but increaſe his team proportionally to this unexpected demand for tillage. The land muſt all be ſown with turnips; after them with barley, as before, and with that barley the ſainfoine: but he muſt on no account omit the turnips, and from a miſtaken deſire of ſaving time, ſowing the graſs with a ſecond crop of barley; for that will inevitably make the ſainfoine, however it may ſucceed, be much more weedy than when it follows turnips well hand-hoed; for the barley cannot receive even tolerable tillage after the time of diſcovering that the ſainfoine has failed;—and being ſown under any diſadvantage, is a certain way to occaſion the crop not being of a long duration. This accident, therefore, only increaſes the trouble and attention of the improver, but not diminiſhes his profit, which will even be greater than in the other caſe; though of a nature, in extending his arable crops and dividing his attention,

tention, not to be purſued in the plan of improvement.

The ſecond circumſtance to be noted here, is the renewal of the ſainfoine after it is worn out; and this point of its not being perpetual, is a much greater objection than the above. It will upon the dry ſoils I have deſcribed, with the above management, laſt extremely well for 20 years; for which term, and on no account for a ſhorter, I ſhould adviſe the improver to let his farms; but at the expiration of ſuch a leaſe, the buſineſs of renewal muſt be executed, and that is much beſt effected, and much the quickeſt by ploughing for turnips, and after them ſowing barley and ſainfoine as before: in the ſainfoine countries, the common method is to pare and burn, and as that operation conſumes only the old bulbs, and the large roots, I do not think there is any objection to it, and the turnips will be vaſtly better for it; it is far more adviſable in this caſe, than for old ſheep walk ſward.

This renovation of the improvement would be of no bad conſequence, if the landlord continued his works without intermiſſion, becauſe he would then, when the


Ninth
Seventh
Eighth
First
Second
Third
Fourth
Fifth
Sixth

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the renewal became neceſſary, be ready for it, without beginning in every reſpect freſh: when the buſineſs has been finiſhed, all the ſtock and implements ſold, and the hands of all ſorts diſcharged, it is an untoward circumſtance to be *obliged* to go again to huſbandry, for the ſame number of years, as at firſt; for after the firſt farm became vacant, one would of courſe, fall every year. In many inſtances, indeed, the farms would very readily let at the ſame rent, under the tenure of the farmers breaking up the ſainfoine, and laying it down again, but then the landlord ſhould have ſpecial regard to all the operations of that work; and not give his conſent, unleſs the tenant takes a ſecond twenty years leaſe.

Theſe circumſtances are rather unfavourable to the improvement of theſe dry ſoils, but it is only in compariſon with others, which will admit the being laid at firſt to natural graſſes. For they weigh very lightly in the oppoſite ſcale, to the prodigious profit ſtated above. That profit is ſo great, that no landlords poſſeſſing theſe ſoils, ſhould heſitate a moment about the improvement of them: the advantage is very conſiderable, and in no reſpect hazardous.

Upon thoſe ſoils which do not abound with ſtone, the fences will neceſſarily be made with hedges and ditches; all the common ſorts of which are cheaper than walling; ſo that, in this reſpect, the profit would of courſe be the greater.

Upon ſoils alſo that had water, the expence of forming ponds would be ſaved, which would raiſe the benefit of the work greatly.

LETTER XI.

I COME in the next place, to treat of the improvement of thoſe uncultivated dry ſoils, that cover *ſtrata* of marle, fat chalk or clay; the improvement of theſe varies much from the preceding ſort, ſo that it was impoſſible to conſider both under one head.

I ſuppoſe theſe tracts to be uninclosed, and applied at beſt to nothing more than the feeding rabbits or ſheep; the improver muſt build farm-houſes upon it, in number according to the ſized farms, moſt marketable in the country: this article of building muſt be calculated as much more expenſive than in any of the preceding improvements of ſoils that abound with ſtone: probably theſe light ſandy lands on rich *ſtrata*, have no command of ſtone; conſequently (as I ever ſuppoſe all buildings to be erected in the ſtrongeſt and moſt ſubſtantial manner) we muſt calculate for brick and tile for the dwelling-houſes; and where brick is dear, for board and tiles for all offices.

The incloſures muſt, for the ſame reaſon, be formed by hedges and ditches, planted with white thorn and ſecured dead hedges, or poſts and rails: the former being moſt common and moſt adviſable, I ſhall reject the latter.

The grand improvement of the ſoil, is the ſpreading on it a ſufficient quantity of the ſtiff earth, that is under the ſurface, whether marle—fat chalk—or clay; dry, hard chalks, that break with difficulty, may effect an improvement, but they are much more ſuſpicious.

The improver muſt ſet all the hands he can meet with to work about *Michaelmas*, and keep them hard at it, from that time forwards. All fencing muſt be completed in winter; in that time alſo, the marle carts ſhould be kept conſtantly at work, and never ſtop either in winter or ſummer. As I propoſe the improvement of the very worſt ſands, as well as light loams of various degrees of merit, I ſhall not ſtate or leſſen the quantity *per* acre than 100 loads, each a cubical yard, which will run from

27 to 32 buſhels each, ſay 30 buſhels; but as ſmall three-wheeled carts are to be uſed, it will be 200 loads. I ſuppoſe the manure to be every where found at different depths under the ſurface, and ſhallow enough to be flung directly into the carts; which is common in moſt of the marle and chalking countries with which I am acquainted; in this caſe, theſe ſmall carts which contain about 15 buſhels, and are drawn by a ſingle horſe, are far preferable to the larger kinds: where the draft is ſhort (and no body would have a long one, when they may ſink as many pits as they pleaſe) two horſes and one driver, one to be uſed at a time, and changed at noon, will keep two or three carts at work from day-break, *till dark* night, filled according to diſtance by two, three or four men; and will carry from 50 to 80 loads a day, and juſt around the pit with four or five fillers, even to 100. This is from 25 to 50 common loads, which is a very good day's work for three great carts and ſix horſes. This at once ſhews the ſuperiority of the ſmall carts, for two horſes do more than ſix; and it is the teams that create the trouble and complexity of improvements,

ments, not manual labour, that cannot be contracted for.

The common price for digging and filling is 3 *d. per* great load, and it is reckoned that driver, and team, and carts, double that price, or 6 *d.* in the whole; but with the ſmall carts, at only 50 loads a day, at 1½ *d. per* load, digging and filling are 6 *s.* 3 *d.* and it is ſufficiently clear, that two horſes and one man cannot make 6 *s.* 3 *d.* more.

It is to be obſerved, that the manure is always to be laid on the old turf or ſurface, no tillage given till it is ſpread. After the manuring, the improver ſhould attempt to let the land; in three-fourths of the kingdom, this would be done with the utmoſt readineſs; for new and convenient buildings, good and regular fences, with an old ſurface marled, chalked, or clayed, at the rate of 100 loads *per* acre, would let with the utmoſt eaſe, on a long leaſe, at from 8 *s.* to 14 *s.* an acre; but I ſhall calculate only at 10 *s.* In caſe it would not let in that manner at all; I know not how otherwiſe it ſhould be made to do it; for ploughing it up and taking a few crops, would not at all alter the caſe; and the ſoil is, we may ſuppoſe, quite unfit for natural graſſes.

In this ſyſtem of improvement, the landlord has numerous advantages; he is not at all troubled with *farming*, his only buſineſs is *improving*, and he may let his farms very ſpeedily, from his undertaking the works.

There is the ſame neceſſity in this method, as in the former ones, of taking in ſome freſh land every year; never to deſiſt from additions till the deſign is completed, on account of the very important point of keeping the hands of all ſorts conſtantly at work; ſuch as builders, hedgers, ditchers, and the manure diggers; for by ſuch means, he will always have it in his power to increaſe his improvements, to whatever extent he thinks proper.

The rent of the land before the improvement, I ſhall ſuppoſe, 1 *s.* 6 *d.* an acre.

Firſt Year.

The improvement to be begun by incloſing a farm of 320 acres in ſix fields, being half a ſquare mile. The expences of which will be as follow:

	l.	s.	d.
Buildings, - - -	500	0	0
Fencing 5 miles, or 1600 perches, at 3 *s*. that is, the ditch 1 *s*. 6 *d*. quick 6 *s*. and hedge, 1 *s*. -	240	0	0
Ten gates, &*c*. - -	20	0	0
	760	0	0

Stock.

	l.	s.	d.			
Seven horſes, -	112	0	0			
Harneſs, - -	10	0	0			
12 Carts, - -	72	0	0			
				210	0	0

Labour.

Four lads to drive, -	60	0	0			
Filling 60,000 ſmall loads, at 1½ *d*. and ſpreading ¼ *d*. ; in all 1¾ *d*. -	437	10	0			
				497	10	0

Sundries.

Keeping 7 horſes, -	70	0	0			
Wear and tear, -	5	0	0			
Rent, at 1 *s*. 6 *d*. -	22	10	0			
				97	10	0
Total, firſt year, - -				1565	0	0

In this account, here are four ſets of carts allowed, three ſets of three each with two horſes, and one of two with one horſe; which in 300 days will carry, at only 60 a day to the double teams, ſome thouſand loads above 60,000, the number to be laid on. The whole improvement I ſuppoſe to be effected within the year, but I ſhall allow a year for letting, and not charge the product of the improvement till the ſecond year.

Second Year.

Three hundred acres to be taken in as before.

	l.	s.	d.
Buildings, - - - -	500	0	0
Fencing, four miles, as before,	192	0	0
	692	0	0

Labour.

	l.	s.	d.	l.	s.	d.
Four lads, -	69	0	0			
60,000 loads, -	437	10	0			
				497	10	0
Carried over,				1189	10	0

		l. s. d.
Brought over,		1189 10 0

Sundries.

Keeping 7 horſes, -	70 0 0	
Wear and tear, -	7 0 0	
Rent, - -	45 0 0	
Unſpecified demands,	50 0 0	
		172 0 0
Total, ſecond year,		1361 10 0

General Account at the End of the Second Year.

	l. s. d.
Raiſed on the firſt farm of 150*l.* a year, - - -	3700 0 0
Expences of the ſecond, -	1361 10 0
Caſh in hand at the end of the ſecond year, - -	2338 10 0

1565*l.* the expence of the firſt year, is therefore the ſum requiſite for the improvement. To which ſhould be added, 126*l.* for two years intereſt, in all 1691*l.*

Third Year.

Four hundred acres to be added this year in ſeven fields. Improvement as before.

Buildings,

	l.	s.	d.
Buildings,	600	0	0
Fencing $5\frac{1}{8}$ miles,	252	0	0
	852	0	0

Stock.

	l.	s.	d.			
2 horſes,	32	0	0			
3 carts,	18	0	0			
Harneſs,	3	0	0			
				53	0	0

Labour.

80,000 loads,	583	6	8			
Five lads,	75	0	0			
				658	6	8

Sundries.

Keeping 9 horſes,	90	0	0			
Wear and tear,	12	0	0			
Rent,	30	0	0			
Intereſt of 1691 *l.*	68	0	0			
Unſpecified demands,	50	0	0			
				250	0	0
Total, third year,				1813	6	8

General

General Account at the End of the Third Year.

	l.	*s.*	*d.*
Caſh in hand at the end of the ſecond year, - - -	2338	10	0
Diſburſement of the third, -	1813	6	8
Remains, - -	525	3	4
Raiſed on a farm of 150*l.* a year,	3700	0	0
Caſh in hand at the end of the third year, - - -	4225	3	4

Fourth Year.

Six hundred acres in two farms, each of 300 in 4 fields, to be added this year to the cultivated land, alſo plantations: in the firſt year, there are 20 acres over; in the ſecond 20, and the ſame in the third: this year 40, as the whole is a ſquare mile of 640. The walling to part off all theſe ſcreens, with the new incloſures, extends 10 miles and an half.

	l.	*s.*	*d.*
Buildings, - - - - -	1000	0	0
Fencing 10 miles and an half, -	504	0	0
	1504	0	0

				l.	*s.*	*d.*
Brought over, -				1504	0	0

Stock.

	l.	*s.*	*d.*			
5 horſes, - -	80	0	0			
7 carts, - -	42	0	0			
Harneſs, - -	9	0	0			
				131	0	0

Labour.

120,000 loads, -	875	0	0			
7 lads, - -	105	0	0			
				980	0	0

Sundries.

Keeping 14 horſes,	140	0	0			
Wear and tear, -	20	0	0			
Rent, - -	52	10	0			
Intereſt, - -	68	0	0			
Unſpecified articles,	70	0	0			
				350	10	0
Planting 100 acres, - -				700	0	0
Diſburſement,				3665	10	0

General Account at the End of the Fourth Year.

	l.	*s.*	*d.*
Caſh in hand at the end of the third year, - - -	4225	3	4
Diſburſement of the fourth, -	3665	10	0
Remains, -	559	13	4
Raiſed on a farm of 200 *l.* a year,	5000	0	0
Caſh in hand at the end of the fourth year, - - -	5559	13	4

Fifth Year.

This year I ſhall ſuppoſe a ſquare mile and half added, being 960 acres, in three farms of 300 each, and a plantation of 60, as before, in a ſcreen along two ſides of the farms: the walling is 12 miles.

	l.	*s.*	*d.*
Buildings, - - -	1500	0	0
Fencing, - - -	582	0	0
Planting, - - -	500	0	0
	2582	0	0

Stock.

	l.	s.	d.
Brought over,	2582	0	0

Stock.

	l.	s.	d.			
6 horſes, - -	96	0	0			
9 carts, - -	54	0	0			
Harneſs, - -	10	0	0			
				160	0	0

Labour.

180,000 loads, -	1312	10	0			
10 drivers, - -	150	0	0			
				1462	10	0

Sundries.

Keeping 20 horſes,	200	0	0			
Wear and tear, -	40	0	0			
Rent, - -	79	10	0			
Intereſt, - -	68	0	0			
Unſpecified articles,	100	0	0			
				487	10	0
Total, fifth year, -				4692	0	0

General Account at the End of the Fifth Year.

Caſh in hand at the end of the fourth year, - - - -	5559	13	4
Diſburſement of the fifth, -	4692	0	0
Remains, - - -	867	13	4

	l.	s.	d.
Brought over,	867	13	4
Raiſed on a farm of 300 l. a year,	7500	0	0
Caſh in hand at the end of the fifth year, - - -	8367	13	4

Sixth Year.

This year ſixteen hundred acres may be added; 1500 in five farms of 300 each, and 100 of plantation, as before, in ſcreens. The fences extend 17 miles.

	l.	s.	d.
Buildings, - - -	2500	0	0
Fences, - -	824	10	0
Planting, 100 acres, -	700	0	0
	4024	10	0

Stock.

	l.	s.	d.			
16 horſes, -	256	0	0			
24 carts, - -	144	0	0			
Harneſs, - -	25	0	0			
				425	0	0

Labour.

300,000 loads, -	2187	10	0			
18 drivers, -	270	0	0			
A bailiff, - -	50	0	0			
				2507	10	0
Carried over,				6957	0	0

	l.	s	d.
Brought over,	6957	0	0

Sundries.

	l.	s.	d.			
36 horſes, - -	360	0	0			
Wear and tear, -	70	0	0			
Intereſt, - -	68	0	0			
Rent, - -	132	0	0			
Unſpecified articles,	100	0	0			
				730	0	0
Total, ſixth year, -				7687	0	0

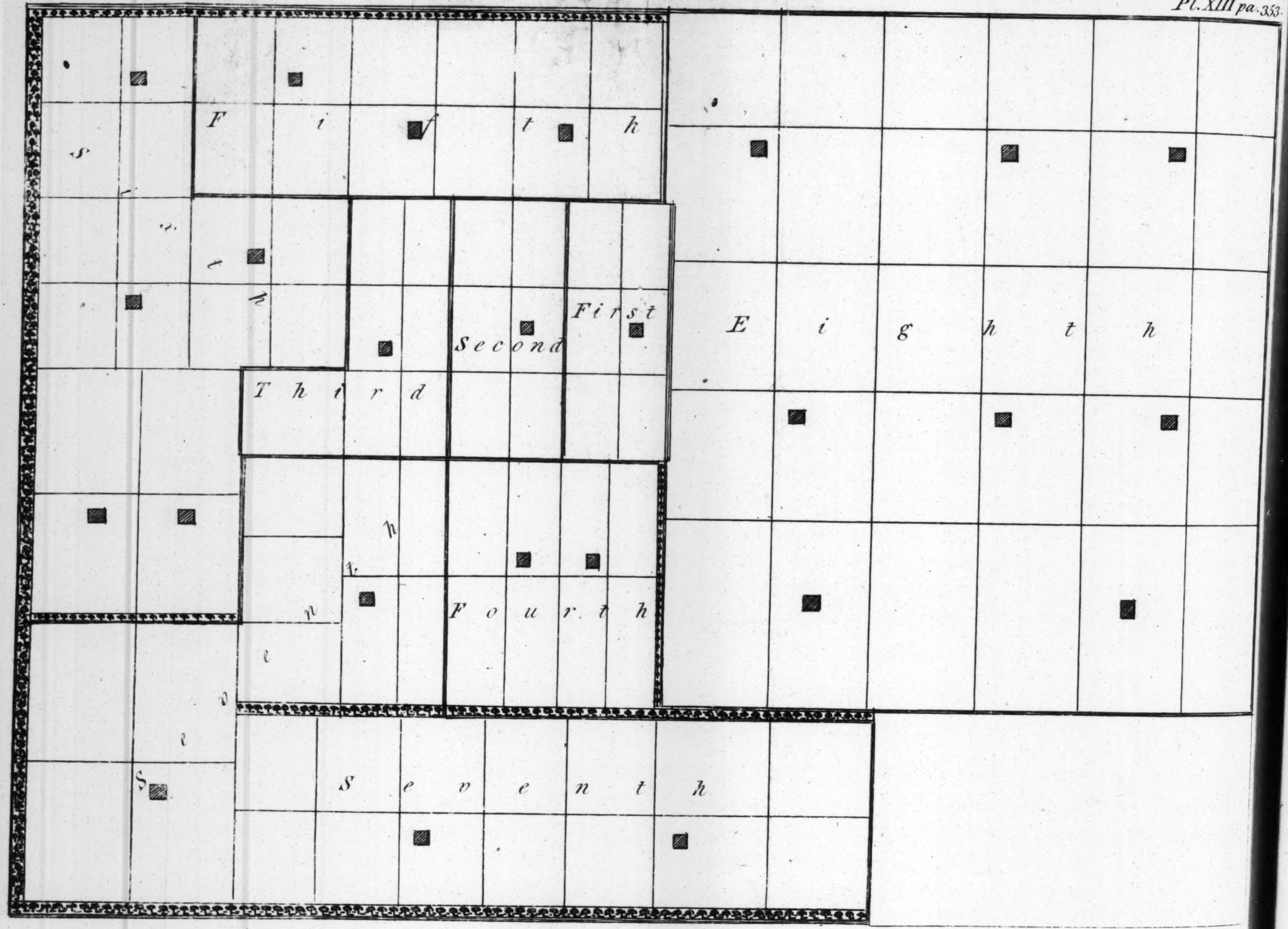
General Account at the End of the Sixth Year.

	l.	s.	d.
Caſh in hand at the end of the ſixth year, - - -	8367	13	4
Diſburſement of the ſixth, -	7687	0	0
Remains, -	680	13	4
Raiſed on a farm of 450 *l.* a year,	11000	0	0
Caſh in hand at the end of the ſixth year, - - -	11680	13	4

Seventh Year.

Two thouſand five hundred and ſixty acres to be taken in this year; 2400 in four farms of 600 each; and 160 in planted ſcreens. The fencing extends 14 miles.

				l.	s.	d.
Buildings, - - -				2800	0	0
Fencing, - - -				679	0	0
Planting 160 acres, - -				800	0	0
				4279	0	0
Stock.						
16 horſes, carts, &c. as before,				425	0	0
Labour.						
	l.	s.	d.			
480,000 loads -	3500	19	8			
26 drivers, -	390	0	0			
Bailiff, - -	50	0	0			
				3940	19	8
Sundries.						
52 horſes, -	520	0	0			
Wear and tear, -	100	0	0			
Intereſt, - -	68	0	0			
Rent, - -	211	10	0			
Unſpecified articles,	150	0	0			
				1049	10	0
Total, -				9694	9	8


Fifth
Sixth
First
Second
Third
Eighth
Fourth
Seventh
Seventh

General Account at the End of the Seventh Year.

	l.	*s.*	*d.*
Caſh in hand at the end of the ſixth year, - - -	11,680	13	4
Diſburſement of the ſeventh, -	9,694	9	8
Remains, - -	1,986	3	8
Raiſed on a farm of 750 *l.* a year,	18,700	0	0
Caſh in hand at the end of the ſeventh year, - -	20,686	3	8

Eighth Year.

This year I ſhall ſuppoſe the double of the laſt addition; *viz.* 5120 acres, in eight farms of 600 each, which is 4800; and 320 in planted ſcreens; the fences will be in proportion to the laſt. See Plate XIII.

	l.	*s.*	*d.*
Buildings, - - -	5600	0	0
Fences, - -	1358	0	0
Planting, - - -	1600	0	0
	8558	0	0

	l.	s.	d.	l.	s.	d.
Brought over,				8558	0	0
Stock.						
56 horſes,	896	0	0			
84 carts,	504	0	0			
Harneſs,	70	0	0			
				1470	0	0
Labour.						
960,000 loads,	7001	19	4			
54 drivers,	810	0	0			
Bailiff,	50	0	0			
				7861	19	4
Sundries.						
108 horſes,	1080	0	0			
Wear and tear,	150	0	0			
Intereſt,	68	0	0			
Rent,	439	10	0			
Unſpecified demands,	200	0	0			
				1937	10	0
Total,				19827	9	4

General Account at the End of the Eighth Year.

	l.	s.	d.
Caſh in hand at the end of the 7th year,	20,686	3	8
Diſburſement of the 8th,	19,827	9	4
Remains,	858	14	4

	l.	*s.*	*d.*
Remains, - -	858	14	4
Sale of horſes and implements,	500	0	0
	1,358	14	4
Raiſed on a farm of 3600 *l.* a year,	90,000	0	0
Caſh in hand at the end of the 8th year, - - -	£. 91,358	14	4
Firſt mortgage, - -	1,691	0	0
Raiſed on the farms at various times, - - -	139,600	0	0
	141,291	0	0
The above total, - -	91,358	14	4
Remains a debt of - -	49,932	5	8
The farms conſiſt of 11,200 acres, let at - - -	5,600	0	0
Beſides 740 acres planted, in all 11,940 acres, formerly let at -	895	0	0
Clear improvement, -	4,705	0	0
Which valued or ſold at 30 years purchaſe, amounts to -	141,150	0	0
Deduct the remaining debt,	49,932	0	0
Neat profit on the improvement, beſides 740 acres of plantation, which have coſt, beſides incloſing, 4300 *l.* - -	£. 91,218	0	0

This amount gained in eight years from ſo ſmall a ſum as 1690 *l.* ſhews plainly the immenſe advantages of expending money in this manner. No landlord poſſeſſing ſuch waſte ſoils, nor any man who can hire them to the quantity he deſires, can ever lay out his money to better intereſt. But the profit is ſo very great, and ſo few have reaped ſuch ample harveſts, that doubtleſs many of my readers will queſtion the authority of the eſtimate.

I ſhall in anſwer to this obſerve, that though I have it not in my power to calculate on abſolute data, laid down in particular experiments; yet the points on which I have formed the eſtimate can hardly I think be diſputed: the expences are indubitably above the truth, and with ſuch allowances of various ſorts, as muſt clear that part of the plan from the leaſt imputation of being exaggerated.

The grand article is, the probability of the land, when improved, letting for 10 *s. per* acre. In this reſpect, the reader muſt reflect on the ſtate of the farms; the buildings all new, and of the beſt materials—excellently incloſed farm-yards, upon the moſt convenient conſtruction.——fences in abſolute perfection, according to the method of forming them, all the land covered at the rate of 100 large loads of marle *per* acre; and the old ſoil worth 1*s.* 6*d.* *per* acre uninclosed, and unimproved. Under theſe circumſtances, I conclude it would let readily at 10*s.* *per* acre; I know not how, in the bounds of probability, to ſuppoſe a leſs rent. But if 9*s.* 8*s.* or even only 7*s.* 6*d.* be taken, it is extremely viſible, the profit will yet remain very great. If it lets for only 8*s.* an acre, the clear profit is near ſixty thouſand pounds.

What other objections can be raiſed, I know not. I apprehend, I have more than once obviated all that can ariſe from the quantity of land annually improved: it is gradually increaſed, ſo that any number of hands may be procured: this is a principal point in all ſuch undertakings as the preſent; gaining hands ſufficient for extended works, all depend upon annually increaſing them; the very higheſt ſum here ſuppoſed in one year to be paid for labour, is but 8300*l.* or at 25*l.* a head for 332 men, a mere trifling number compared to what I would engage to procure at any ſpot in *England:* men who were employed the whole year, at ſuch very advantageous works as filling cart, and hedging and ditching, and *all by the meaſure*, ſo that they might by working hard, earn as much as they pleaſed, would flock from all parts to reap advantages they could gain no where elſe. But it is certain, they would earn greatly more than 25*l.* a man at the high prices I have ſtated; and conſequently not ſo many be requiſite.

No one I think can object, to the total *quantity* of the land; I can refer ſuch to many parts of *England*, where inſtead of 11,000 they may have ſeveral hundred thouſands of ſuch acres.

But at laſt comes the old queſtion, *Why has nobody executed ſuch a plan, ſeeing that every landlord muſt know as much of the matter as you?* I am by no means bound to anſwer this query; it comes not within the verge of any calculation. But I ſhall juſt hint that a man's poſſeſſing the knowledge of certain circumſtances of importance, is in ſuch caſes of little utility, unleſs he throws them together, and examines the reſult of every connection. To marle an acre coſts 3*l.*; to build a houſe, 300*l.*; to make a fence, 3*s.* a perch. Land worth 1*s.* 6*d.* worth 10*s.* can any one from ſuch unconnected circumſtances dream of another ninety thouſand pounds profit in eight years. The data themſelves are not of more uſe, than the capacity to arrange and calculate them. Few landlords will give themſelves the trouble to gain the requiſite knowledge of certain circumſtances, and then to calculate the reſult of *expending* a given ſum of money, according to the principles on which thoſe circumſtances are founded. And I flatter myſelf, that theſe eſtimates, ſuppoſing them ever ſo incorrect and miſtaken in the ſums, may yet be of no trifling uſe to thoſe who may think of calculating an improvement.——But there remains yet another circumſtance to be conſidered.

There are many farmers poſſeſſing conſiderable ſums of money, and fixed in theſe countries, who uſe marle, and yet make no ſuch fortunes as I have ſuppoſed; but this is no objection. I have not recommended to any improver to turn *farmer*: farming and improving are eſſentially different——let the landlord ever make the former ſubſervient to the latter; never let him (when making much money is his plan) farm more than requiſite for carrying on his improvements; by improving, I mean turning his waſte lands into farms, as ſoon as poſſible: this in every ſtage of it is twenty, nay forty times more profitable than any farming in the world for his money, though a ſmall ſum comes round very ſpeedily; and proportioned to its amount, brings ten times the quantity of land into profit than farming it would allow. Thus the ſmall comparative profit of farming, muſt never be uſed as an argument againſt the greater benefits of improving; ſince they are utterly diſtinct: merchandize and improvements might as well be compared.

The conſideration of this point leads me here to remark, that this great profit on improvements all depends on the improver's mortgaging his new farms, as faſt as he makes them. If he changes this conduct, all the preceding immenſe profits vaniſh at once. In the laſt calculation, the firſt ſum is only 1700 *l.* Suppoſe the farm made by it is not mortgaged, in that caſe he muſt provide at the ſame time for the expences of the ſecond year, or 1361 *l.* more; thus muſt his capital be double at once. The expences of the third year are 1800 *l.* what is to anſwer that ſum? Not the *income* of his two firſt farms, that would not equal it in ſix years ſavings. Thus muſt he not begin his works without a vaſt ſum of ready money, which not one in ten could, or would think of raiſing. It is not income the improver wants, but large ſums of money, which he pays 4 *per cent. for*, and makes forty *by*. Hence is this plan of annually raiſing money on the new farms, the very ſoul of ſuch undertakings.

LETTER XII.

THE improvement of thoſe waſtes, which are ſituated on rich ſoils and overrun with a luxuriant ſpontaneous growth, come next to be conſidered. There are vaſt tracts of theſe in many parts of theſe kingdoms, which call for improvement from their poſſeſſors, but at preſent with none.

The ſoils of theſe tracts are various; but in general wet, from not enjoying the advantage of being cut by ditches and water-courſes, or ever having had any drains made in them: they conſiſt of clays, loams and gravels; and are overrun with various ſorts of trees, ſhrubby wood, buſhes, whins, *&c.* but no ling. The ſoil is acknowledged by every one, to be equal to the ſurrounding countries which are well cultivated; theſe waſtes will admit of any huſbandry, from the natural excellency of the ſoil; they may be converted to graſs or arable farms with great profit, but I ſhall ſuppoſe the former, as in all caſes it ought to be the rule, when the land will admit it. Of this nature is *Enfield Chace*, *Epping Foreſt*, *New Foreſt*——and a vaſt many tracts in the moors of the north, called there *white land*; where the ſpontaneous growth is principally whins. I believe the average rent may be called in the ſouth of *England*, 2 *s.* 6 *d.* but in the moors it brings no more than black land, for all are equally waſte: however, I ſhall ſuppoſe the average rent to be 2 *s.* 6 *d.* *per* acre while unimproved. But relative to moors, let me obſerve, that the improvement differs but little from that which I have examined in another place; therefore I ſhall confine myſelf now to countries where building is dear, and where no lime is to be had. Another circumſtance to be taken into this account, is the value of the ſpontaneous growth, for it is in general of ſuch luxuriance as to amount to a very conſiderable value, and *will certainly* more than fill up all the drains that can be requiſite.

The manner of draining theſe lands ſhould be by deep ditches where neceſſary, and covered drains laid into them: theſe covered drains I have ſufficiently explained in the firſt part of this work.

I ſhall ſuppoſe the farms large ones, and all of graſs, and to let, when improved upon a proper plan, at 20 *s.* *per* acre. In working this improvement, the landlord is to act on the principles already laid down; particularly that of incloſing a farm *every* year; and mortgaging it as ſoon as let for money, to proceed with his deſigns.

The fences are to be the ſame as in the laſt ſtated improvement; that is, ditches, the banks planted with white thorn, and defended by a dead hedge. It would on many tracts of this ſort of land, be no improbable ſuppoſition, to ſtate the dead hedges to be made out of the buſhes that aroſe in clearing the land; but I ſhall wave ſuch advantage, and charge the whole coſt as before.

Reſpecting the grubbing up of the ſpontaneous growth, it is to be obſerved, that the common practice is very clear and determinate. The men cut off all the wood, and make it into faggots at a given price; they then grub up *all* the roots, ſo as a plough ſhall meet with no obſtruction, for 6*s.* a ſtack, which is 14 feet long, 3 high, and 3 broad; if the roots are very ſmall and trifling, they ſell at 7*s.* a ſtack, but if of large ſtubbs, or any greater ſize, from 9*s.* to 10*s.* 6*d.* and of the ends or bodies of ſhrubby and pollard trees, at from 10*s.* 6*d.* to 14*s.* a ſtack. But to prevent complex accounts, I ſhall in this article give up a very material advantage, and ſuppoſe them only to pay the charge of taking up; and I ſhall not ſtate more faggot wood than requiſite to fill up the covered drains.

As to the management of the land, the ſoil is not of the proper ſort for turnips; it is therefore abſolutely neceſſary to plant it with cabbages for the firſt crop, upon three ploughings: after the cabbages, barley to be ſown, and with that barley, natural graſſes as before explained. It is of much importance to determine upon the culture of cabbages in this caſe, for no other crop can be ſubſtituted for them; if corn is ſown, which is too often practiſed, the huſbandry will be rendered too complex; or the graſſes ſown without the land being in that perfectly clean ſtate which is abſolutely neceſſary.

I ſhall charge all the labour by the piece; and as the ſoil is ſtrong, I ſhall allow 1 *s.* 3 *d. per* acre for the labour of ploughing, including the taking care of the horſes, and 1½ *d. per* acre harrowing.

Firſt Year.

The beginning to be the taking in a farm of 320 acres in four fields.

	l.	*s.*	*d.*
Buildings, - - - -	550	0	0
Fencing 4½ miles, at 3 *s.* a perch,	216	0	0
Gates, and paling, - -	30	0	0
Suppoſe 200 acres want draining, at the rate of 70 perch *per* acre, at 5 *d. per* perch, including all labour of digging, cutting buſhes and filling; this will amount to - - - - -	291	11	6
	1087	11	6

Stock.

	l.	*s.*	*d.*			
Eight horſes, -	128	0	0			
Harneſs, - -	16	0	0			
3 light waggons, -	60	0	0			
5 carts, - -	60	0	0			
4 ploughs, -	14	0	0			
4 plough harrows, -	8	0	0			
3 rollers, - -	6	0	0			
Sundry ſmall implements,	20	0	0			
Stock for 320 acres of cabbages, -	4000	0	0			
				4312	0	0
Carried over, -				5399	11	6

				l.	*s.*	*d.*
Brought over,				5399	11	6

Labour.

	l.	*s.*	*d.*			
A bailiff, - -	60	0	0			
Thrice ploughing 320 acres, - -	60	0	0			
Twice harrowing, -	12	0	0			
Water thorrowing, at 3 *d.*	12	0	0			
Planting 320 acres, at 5 *s.*	80	0	0			
Hand-hoeing, at 3 *s.*	48	0	0			
Horſe-hoeing thrice, at 8 *d.* - -	32	0	0			
Cutting and carting, 5 *s.* *	80	0	0			
Sundry labour, -	60	0	0			
				444	0	0

Seed.

320 acres, at 2 *s.* - -				32	0	0

Sundries.

Expences of 8 horſes, -	80	0	0			
Wear and tear, -	30	0	0			
Rent, at 2 *s.* 6 *d.* -	40	0	0			
Tythe, at 2 *s.* *per* acre,	32	0	0			
Carried over,	180	0	0	5875	11	6

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* In theſe eſtimates, where men were hired, and ſpare time allowed for ſuch work as this, it was omitted, but here it is requiſite to inſert it.

	l.	s.	d.	l.	s.	d.
Brought over,	180	0	0	5875	11	6
Town charges, 2 *s.* 6 *d.* in the pound, on 2*s.* 6*d.* an acre *, - -	5	0	0			
Sundry unſpecified articles,	50	0	0			
				237	0	0
Diſburſement, -				6112	11	6
Product of 320 acres of cabbages, at 6 *l.* improvement of ſtock,				5920	0	0
Expence, - -				192	11	6

Conſidering that theſe waſtes, which are naturally very rich lands, are thoroughly drained, and that the ſoil is well pulverized, not only by three ploughings, but by the grubbing—and that from lying ſo long wild, it muſt be in great heart—theſe points conſidered, 6 *l.* *per* acre for the cabbages laid into the farm-yard for the beaſts, is a moderate price, and certainly under the truth.

Second Year.

The ſame addition to be made this year as the firſt; conſequently the fences will be three miles and three quarters.

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* This article I add here, becauſe much of this ſort of land lies in the ſouth, where rates are high; and the rent of this waſte is higher than any yet calculated; it was always too low an object before.

Buildings,

	l.	s.	d.
Buildings, - - -	550	0	0
Fences three miles and three qrs. with gates, &c. - -	200	0	0
Suppoſe 200 acres to want draining, as before, - - -	291	11	6
	1041	11	6

Stock.

In every article the ſame as laſt year,	4312	0	0

Labour.

	l.	s.	d.			
Bailiff, -	100	0	0			
Thrice ploughing 640 acres, - -	120	0	0			
Thrice harrowing,	24	0	0			
Water thoroughing,	24	0	0			
Planting, horſe and hand-hoeing and carting 320 acres of cabbages, at 13*s.* 8*d.* - -	240	0	0			
Sowing 320 acres barley,	4	0	0			
Harrowing thrice, -	12	0	0			
Sowing graſs ſeed, -	12	0	0			
Rolling, -	0	15	0			
Mowing and harveſting, 320 of barley, -	80	0	0			
Threſhing 1600 qrs. at 1*s.* 6*d.* -	120	0	0			
Carting manure, -	30	0	0			
Sundry labour, -	50	0	0			
				816	15	0
Carried over,				6170	6	6

	l.	s.	d.	l.	s.	d.
Brought over, -				6170	6	6
Seed.						
320 acres of cabbages,	32	0	0			
320 barley, -	128	0	0			
320 graſſes, -	320	0	0			
				480	0	0
Sundries.						
Keeping 16 horſes, -	160	0	0			
Wear and tear, -	60	0	0			
Rent, - -	80	0	0			
Tythe, - -	64	0	0			
Town charges, -	10	0	0			
Sundry unſpecified articles, - -	80	0	0			
				454	0	0
				7104	6	6
Product.						
Improvement of ſtock by 320 acres of cabbages, - -	5920	0	0			
1600qrs. barley, at 16*s*.	1280	0	0			
				7200	0	0
Diſburſement, -				7104	6	6
Balance, - -				95	13	6

We here find, that we can already calculate the ſum requiſite for the preſent improvement, for the product of this year will evidently be ſufficient for the expences of the next.

	l.	s.	d.	l.	s.	d.
Diſburſement of the firſt year, -				6112	11	6
Ditto of the ſecond,	7104	6	6			
Intereſt of 6112 *l.* -	244	0	0			
	7348	6	6			
Product of the firſt,	5920	0	0			
				1428	6	6
Total requiſite for the improvement,				7540	18	0

Relative to the above product of barley, I muſt obſerve, that five quarters an acre upon an average is the ſmalleſt quantity I can ſuppoſe; and the conſiderate reader will not think me the leaſt extravagant in ſuch an idea, if he reflects on the firſt breaking up of old ſward and woodlands, for ſo ameliorating a crop as cabbages, that are planted upon land well drained if wet, and kept in perfect order by horſe and hand-hoeing:——and that the barley is ſown upon three earths after ſuch crop;

if all theſe points are conſidered, it will be concluded, that five quarters an acre muſt be under, inſtead of over the mark.

Third Year.

Additions as before; this year the graſs ſown with the barley comes to be mown for hay the firſt time.

	l.	s.	d.
Buildings, - - -	550	0	0
Fencing, - - -	200	0	0
Suppoſe 100 acres drained as before,	145	15	9
	895	15	9

Stock.

	l.	s.	d.
For 320 acres of cabbages, -	4000	0	0

Labour.

	l.	s.	d.	l.	s.	d.
Bailiff, - -	100	0	0			
Ploughing, harrowing *&c.* as before, -	168	0	0			
320 acres of cabbages, at 13*s.* 8 *d.* -	240	0	0			
Sowing as before, -	16	0	0			
Rolling, - -	0	15	0			
320 acres of barley, -	80	0	0			
Threſhing 1600 qrs.	120	0	0			
Mowing, making, carting and ſtacking 320 acres of hay, at 7*s.* 6*d.*	120	0	0			
Carried over,	844	15	0	4895	15	9

	l.	s.	d.	l.	s.	d.
Brought over,	844	15	0	4895	15	9
Suppoſe laſt year's cabbages in fatting, made with the help of the ſtraw 10 large loads of dung *per* acre: it is 3200: filling ſpreading and driving at 4*s.* 6*d.* a ſcore, -	36	0	0			
Sundry labour, -	50	0	0			
				930	15	0

Seed.

	l.	s.	d.	l.	s.	d.
320 cabbages, -	32	0	0			
320 barley, - -	128	0	0			
320 graſſes, -	320	0	0			
				480	0	0

Sundries.

	l.	s.	d.	l.	s.	d.
16 horſes, -	160	0	0			
Wear and tear, -	80	0	0			
Rent, at 2 *s.* 6 *d.*	120	0	0			
Tythe, at 2 *s.* -	96	0	0			
Town charges, 2 *s.* 6 *d.* in £. -	15	0	0			
Intereſt of 7540*l.* -	300	0	0			
Unſpecified articles, -	100	0	0			
				871	0	0
				£. 7177	10	9

Product.

	l.	s.	d.	l.	s.	d.
Implements of ſtock by 320 of cabbages and 320 of hay, -	6400	0	0			
1600 qrs. of barley,	1280	0	0			
				7680	0	0
Diſburſement,				7177	10	9
Balance, - -				502	9	3

General Account at the End of the Third Year.

Product of the ſecond year,	7200	0	0
Diſburſement of the third, -	7177	10	9
Remains, - -	22	9	3
Raiſed on a farm of 320 *l.* a year,	8000	0	0
Product of the third year, -	7680	0	0
Caſh in hand at the end of the third year, - -	15702	9	3

Fourth Year.

This year I ſhall ſuppoſe two farms, each of 320 acres to be added to the cultivated land; and managed in all reſpects as before.

Buildings,

	l.	*s.*	*d.*
Buildings, - - -	1100	0	0
Fences, - -	400	0	0
Suppoſe 400 acres want draining, -	583	3	0
	2083	3	0

Stock.

For 640 acres of cabbages, *&c.* -	8000	0	0

Labour.

	l.	*s.*	*d.*			
Bailiff, - -	100	0	0			
Ploughing thrice 960 acres, - -	144	0	0			
Thrice harrowing, -	36	0	0			
Water thoroughing, -	36	0	0			
640 acres of cabbages, at 13*s.* 8 *d.* - -	480	0	0			
Sowing, - -	24	0	0			
Rolling, - -	1	10	0			
320 acres of barley, -	80	0	0			
Threſhing 1600 qrs.	120	0	0			
320 acres of hay, -	120	0	0			
Manuring, - -	36	0	0			
Sundry labours, -	80	0	0			
				1557	10	0

Seed.

640 cabbages, -	64	0	0			
320 barley, -	128	0	0			
320 graſſes, -	320	0	0			
				512	0	0
Carried over,				12152	13	0

				l.	s.	d.
Brought over,				12,152	13	0

Sundries.

	l.	s.	d.			
16 horſes, - -	160	0	0			
Wear and tear, -	100	0	0			
Rent, - -	160	0	0			
Tythe, - -	128	0	0			
Town charges, -	20	0	0			
Intereſt, - -	300	0	0			
Unſpecified expences,	100	0	0			
				968	0	0
				13,120	13	0

Product.

Improvement of ſtock by 640 acres of cabbages and 320 of hay, -	12,320	0	0			
1600 qrs. of barley,	1,280	0	0			
				13,600	0	0
Diſburſement,				13,120	13	0
Balance, - -				479	7	0

General Account at the End of the Fourth Year.

	l.	*s.*	*d.*
Caſh in hand at the end of the third year, - -	15,702	9	3
Diſburſement of the fourth, -	13,120	13	0
Remains, -	2,581	16	3
Raiſed on a farm of 320*l.* a year	8,000	0	0
Product of the fourth year, -	13,600	0	0
Caſh in hand at the end of the 4th year, - - -	24,181	16	3

Fifth Year.

This year I ſhall ſuppoſe two farms, one of 640 acres and the other of 320 to be added to the incloſures; and managed as before.

	l.	*s.*	*d.*
Buildings, - - -	1300	0	0
Fences 10 ¾ miles, - -	600	0	0
Suppoſe 500 acres want draining,	728	18	0
	2628	18	0

	l.	*s.*	*d.*	*l.*	*s.*	*d.*
Brought over, -				2,628	18	0
Stock.						
22 horſes, -	352	0	0			
Implements to ditto,	450	0	0			
For 960 acres of cabbages, - -	12000	0	0			
				12,802	0	0
Labour.						
Bailiff, - -	100	0	0			
Another ditto, -	50	0	0			
Ploughing 1600 acres,	150	0	0			
Harrowing, - -	30	0	0			
Water thoroughing, -	20	0	0			
960 acres of cabbages, at 13*s.* 8*d.* -	720	0	0			
Sowing, - -	36	0	0			
Rolling, - -	3	0	0			
640 acres of barley, -	160	0	0			
Threſhing 3200 qrs.	160	0	0			
320 acres of hay, -	120	0	0			
Manuring, - -	72	0	0			
Sundry labours, -	100	0	0			
				1,871	0	0
Seed.						
960 cabbages, -	96	0	0			
640 barley, - -	256	0	0			
640 graſſes, - -	640	0	0			
				992	0	0
Sundries.						
38 horſes, -	380	0	0			
Wear and tear, -	150	0	0			
Rent, - -	240	0	0			
Carried over,	770	0	0	18,293	18	0

	l.	s.	d.	l.	s.	d.
Brought over,	770	0	0	18,293	18	0
Tythe, - -	192	0	0			
Town charges, -	30	0	0			
Intereſt, -	300	0	0			
Unſpecified articles, -	150	0	0			
				1,442	0	0
Diſburſement, -				19,735	18	0

Product.

	l.	s.	d.	l.	s.	d.
Improvement of ſtock by 960 acres cabbages and 320 of hay; to, -	18,240	0	0			
3200 qrs. of barley,	2,560	0	0			
				20,800	0	0
Diſburſement, -				19,735	18	0
Balance, - -				1,064	2	0

General Account at the End of the Fifth Year.

	l.	s.	d.
Caſh in hand at the end of the fourth year, - -	24,181	16	3
Diſburſement of the fifth, -	19,735	18	0
Remains, -	4,445	18	3
Raiſed on 320*l.* a year, -	8,000	0	0
Product of the fifth year, -	20,800	0	0
Caſh in hand at the end of the fifth year, - - £.	33,245	18	3

Sixth Year.

The addition of this year may conſiſt of 1600 acres of land, in three farms; two of 640, and one of 320 acres. The fences 15 miles long.

				l.	*s.*	*d.*
Buildings,				2000	0	0
Fencings 15 miles,				900	0	0
Suppoſe 750 acres to want draining, the expence is,				1093	7	0
				3993	7	0
Stock.	*l.*	*s.*	*d.*			
18 horſes,	288	0	0			
Implements to ditto,	400	0	0			
For 1600 acres of cabbages, &c.	20,000	0	0			
				20688	0	0
Labour.						
Three bailiffs,	200	0	0			
Thrice ploughing 2560 acres,	480	0	0			
Harrowing ditto thrice,	48	0	0			
Water thoroughing,	32	0	0			
1600 acres cabbages, at 13*s.* 8 *d.*	1200	0	0			
Sowing,	56	0	0			
Rolling,	5	0	0			
960 acres of barley,	240	0	0			
Threſhing 4800 qrs.	240	0	0			
Carried over,	2501	0	0	24681	7	0

	l.	s.	d.	l.	s.	d.
Brought over,	2501	0	0	24681	7	0
640 acres of hay, -	240	0	0			
Manuring, - -	100	0	0			
Sundry labours, -	150	0	0			
				2991	0	0
Seed.						
1600 acres of cabbages,	160	0	0			
960 barley, -	384	0	0			
960 graſſes, -	960	0	0			
				1504	0	0
Sundries.						
56 horſes, -	560	0	0			
Wear and tear, -	250	0	0			
Rent, - -	400	0	0			
Tythe, - -	320	0	0			
Town charges, -	50	0	0			
Intereſt, - -	300	0	0			
Unſpecified articles, -	300	0	0			
				2180	0	0
Diſburſement, -				31356	7	0
Product.						
Improvement of ſtock by 1600 acres of cabbages and 640 of hay, - -	30560	0	0			
4800 qrs. of barley,	3840	0	0			
				34400	0	0
Diſburſement, -				31356	7	0
Balance, - - -				3043	13	0

General Account at the End of the Sixth Year.

	l.	s.	d.
Caſh in hand at the end of the fifth year, - - -	33,245	18	3
Diſburſement of the ſixth, -	31,356	7	0
Remains, - -	1,889	11	3
Raiſed on 640 *l.* a year, - -	16,000	0	0
Product of the ſixth year, -	34,400	0	0
Caſh in hand at the end of the ſixth year, - - -	52,289	11	3

Seventh Year.

The additions of this year, are four farms, each of 640, making 2560 acres. Alſo 14 ſmall incloſures with a cottage in each: the walling of the whole 30 miles.

	l.	s.	d.
Buildings, - - -	3000	0	0
Cottages, - - - -	700	0	0
Fences, - - -	1800	0	0
Suppoſe 1000 acres to want draining, the expence will be	1457	16	0
	6957	16	0

	l.	s.	d.	l.	s.	d.
Brought over, -				6957	16	0
Stock.						
14 horſes, - -	224	0	0			
Implements to ditto,	300	0	0			
For 2560 acres of cabbages, &c. -	30000	0	0			
				30524	0	0
Labour.						
Four bailiffs, -	250	0	0			
Thrice ploughing 4160 acres, - -	780	0	0			
Harrowing ditto thrice,	78	0	0			
Water furrowing, -	58	0	0			
2560 acres cabbages, at 13*s.* 8*d.* -	1920	0	0			
Sowing, - -	70	0	0			
Rolling, - -	8	0	0			
1600 acres of barley,	400	0	0			
Threſhing 8000 qrs.	400	0	0			
960 acres of hay, -	360	0	0			
Manuring, -	150	0	0			
Sundry labours, -	300	0	0			
				4774	0	0
Seed.						
2560 cabbages, -	256	0	0			
1600 barley, -	640	0	0			
1600 graſſes, -	1600	0	0			
				2496	0	0
Carried over, -				44751	16	0

				l.	s.	d.
Brought over,				44,751	16	0

Sundries.

	l.	s.	d.	l.	s.	d.
70 horſes,	700	0	0			
Wear and tear,	300	0	0			
Rent,	640	0	0			
Tythe,	512	0	0			
Town charges,	80	0	0			
Intereſt,	300	0	0			
Unſpecified articles,	300	0	0			
				2,832	0	0
Diſburſement,				47,583	16	0

Product.

Improvement of ſtock by 2560 acres of cabbages, and 960 of hay,	46,800	0	0			
8000 qrs. of barley,	6,400	0	0			
				53,200	0	0
Diſburſement,				47,583	16	0
Balance,				5,616	4	0

General Account at the End of the Seventh Year.

	l.	*s.*	*d.*
Caſh in hand at the end of the ſixth year, - - -	52,289	11	3
Diſburſement of the ſeventh, -	47,583	16	0
Remains, -	4,705	15	3
Raiſed on 960 *l.* a year, -	24,000	0	0
Product of the ſeventh year, -	53,200	0	0
	81,905	15	3
Original mortgage, - -	7,540	0	0
Caſh in hand at the end of the ſeventh year, -	74,365	15	3

Eighth Year.

This year I ſhall ſuppoſe the ſame addition as the preceding, for a regular annual work.

	l.	*s.*	*d.*
Buildings, - - -	3000	0	0
Fences, - - -	1800	0	0
Draining, - - -	1457	16	0
	6257	16	0

	l.	s.	d.	l.	s.	d.
Brought over,				6,257	16	0
Stock.						
30 horſes, -	4800	0	0			
Implements, -	500	0	0			
For cabbages, -	30000	0	0			
				30,980	0	0
Labour.						
4 bailiffs, - -	250	0	0			
Thrice ploughing 5120 acres, - -	960	0	0			
Harrowing, -	96	0	0			
Water furrowing, -	70	0	0			
2560 acres cabbages,	1920	0	0			
Sowing, - -	85	0	0			
Rolling, - -	9	0	0			
2560 barley, -	640	0	0			
Threſhing 12,800 qrs.	640	0	0			
1600 of hay, -	600	0	0			
Manuring, -	200	0	0			
Sundry labours, -	300	0	0			
				5,770	0	0
Seed.						
2560 cabbages, -	256	0	0			
2560 barley, -	1024	0	0			
2560 graſſes, -	2560	0	0			
				3,840	0	0
Carried over,				46,847	16	0

				l.	s.	d.
Brought over,				46,847	16	0

Sundries.

	l.	s.	d.	l.	s.	d.
100 horſes, -	1000	0	0			
Wear and tear, -	500	0	0			
Rent, - -	840	0	0			
Tythe, - -	672	0	0			
Town charges, -	105	0	0			
Unſpecified articles,	400	0	0			
				3,517	0	0
Diſburſement, - -				50,364	16	0

Product.

	l.	s.	d.	l.	s.	d.
Improvement of ſtock by 2560 acres of cabbages and 1600 of hay,	47,760	0	0			
12,800 qrs. of barley, -	10,240	0	0			
				58,000	0	0
Diſburſement, -				50,364	16	0
Balance, - -				7,635	4	0

General Account at the End of the Eighth Year.

	l.	s.	d.
Caſh in hand at the end of the ſeventh year, - -	74,365	15	3
Diſburſement of the eighth,	50,364	16	0
Remains, - -	24,000	19	3
Product of the eighth, -	58,000	0	0
Caſh in hand at the end of the 8th year, - -	82,000	19	3

Ninth Year.

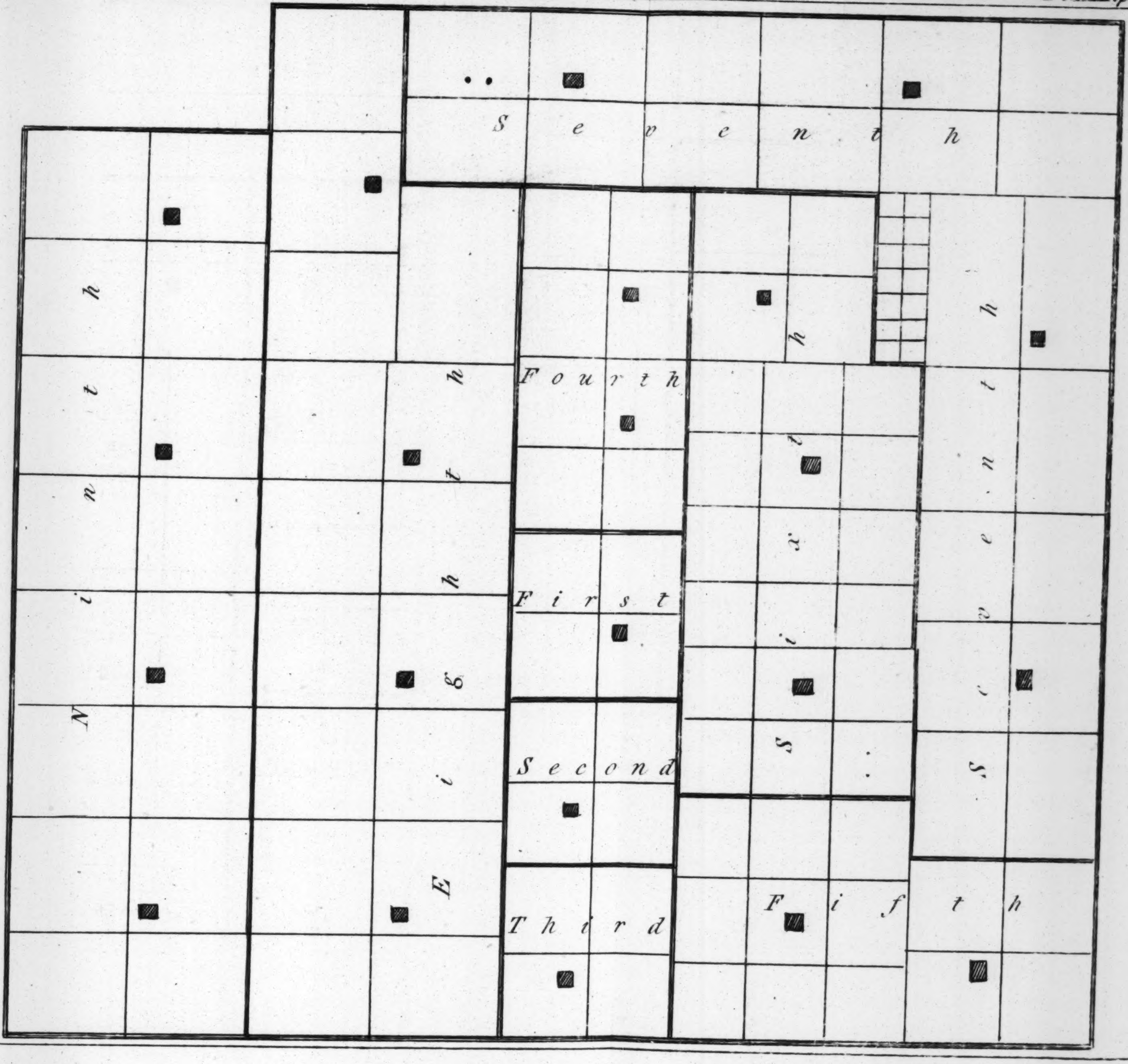
Increaſe of cultivated land, the ſame as laſt year. As it was plain that the above remainder and product would be more than ſufficient for the expenditure of this year, I did not ſuppoſe any freſh ſum raiſed by mortgage. The eſtate will lie as in Plate XIII.

	l.	s.	d.
Buildings, fences and draining, -	6,257	16	0
Stock to eat the cabbages and hay,	30,000	0	0
	36,257	16	0

Labour.

	l.	s.	d.	l.	s.	d.
4 Bailiffs, -	250	0	0			
Tillage as before, -	1220	0	0			
Carried over,	1470	0	0	36,257	16	0

Pl. XIII. pa. 388.



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	l.	s.	d.	l.	s.	d.
Brought over,	1470	0	0	36,257	16	0
2560 cabbages, -	1920	0	0			
2560 barley, -	1280	0	0			
2560 hay, - -	960	0	0			
Manuring, -	200	0	0			
Sundry labours, -	300	0	0			
				6,130	0	0
Seed as before, - -				3,840	0	0
Sundries.						
100 Horſes, -	1000	0	0			
Wear and tear, -	500	0	0			
Rent, - -	960	0	0			
Tythe, - -	768	0	0			
Town charges, -	120	0	0			
Unſpecified articles,	500	0	0			
				3,848	0	0
Diſburſement, -				50,075	16	0
Product.						
Improvement of ſtock by 2560 acres of cabbages and 2560 of hay, to, - -	49,200	0	0			
12800 qrs. barley,	10,240	0	0			
				59,440	0	0
Diſburſement, - -				50,075	16	0
Balance, - -				9,364	4	0

General Account at the End of the Ninth Year.

	l.	*s.*	*d.*
Caſh in hand at the end of the 8th year, - -	82,000	19	3
Diſburſement of the ninth year,	50,075	16	0
Remains, - -	31,925	3	3
Product of the ninth year,	59,440	0	0
Caſh in hand, - -	91,365	3	3

Here I muſt ſtop to obſerve, that the improvement in caſe there is waſte land enough for continuing it, is now become a regular annual buſineſs, for I ſhall ſuppoſe the improver (by way of variation from the preceding eſtimates) to keep his ſtock employed in this manner, inſtead of ſelling off as I before ſketched. At the end of this ninth year, he might draw up his account, in the following manner.

	l.	*s.*	*d.*
Caſh in hand at the end of the ninth year, - - -	91,365	0	0
Raiſed on the farms at various times, - - -	64,000	0	0
Remains, -	27,365	0	0
The farms conſiſt of 6720 acres, let at as many pounds; which valued or ſold at 30 years purchaſe is,	201,600	0	0
Total, - -	228,965	0	0

This is the amount of his improvement in 9 years; that is, let and convertible to that ſum; but it is excluſive of 5120 acres in his own hands, and all the ſtock: from the laſt account, we find that the annual expenditure is 50,000 *l.* we muſt therefore ſtate thus,

	l.	*s.*	*d.*
Total, - - -	228,965	0	0
Deduct for the future operations,	50,000	0	0
Clear remainder, - -	178,965	0	0

applicable to any purpoſe foreign to the improvement, and without that buſineſs at all ſlackening. Further,

We found from the account of the ninth year, which is the ſame as the ſucceeding ones will be, that the annual produce exceeds the annual expence by 9364 *l.* which is conſequently ſo much annual profit; from this time, therefore, the agregate of increaſing annual profit will be as follows:

Tenth Year.

	l.	s.	d.
Rent of 6720 acres let, -	6,720	0	0
Intereſt of 22,635 to make the remainder 27,365 up, the ſum of 50,000l. for the annual expenditure, - - -	905	0	0
Neat rent, - - -	5,815	0	0
Annual profit on the improvement, being the balance of the diſburſement and produce, - -	9,364	0	0
Rent of a farm let this year, -	2,560	0	0
Income of this year, -	17,739	0	0

Eleventh Year.

That of the tenth, - -	17,739	0	0
Rent of another farm, -	2,560	0	0
Total, - - -	20,299	0	0

Twelfth Year.

That of the eleventh, - -	20,299	0	0
Rent of another farm, - -	2,560	0	0
Total, - -	22,859	0	0

Suppoſing the improvement then at an end, the general account would be as follows;

	l.	*s.*	*d.*
Total improved land 19,520 acres let at 19,520*l.* valued or ſold at 30 years purchaſe, amounts to,	585,600	0	0
Product of the laſt year, -	59,440	0	0
Total, - -	645,040	0	0
Deduct the debt of -	22,635	0	0
Remains neat profit on the improvement, beſides the ſtock,	622,405	0	0

This total to be gained from ſo ſmall a capital as 7,540*l.* in ſo ſhort a time as 12 years, muſt appear aſtoniſhing to ſuch as never applied figures to data of the moſt common nature. But the facts are ſuch; and I apprehend thoſe readers, who will take the trouble of examining theſe calculations with attention, will in every part of them find large allowances for all incidental as well as regular expences, and a very moderate eſtimation of product.

That the *quantity* of land is no objection, from the mere extent, I think, will appear from this circumſtance: an oblong ſquare of only ſix miles long by five broad, contains more than the whole amount of this improvement; *viz.* 20,200 acres. There are ſome hundreds of ſuch tracts in this kingdom. Let me obſerve, that *Enfield Chace* would, in the improvement, yield a much more conſiderable profit in this method of culture, than half a million of money; and increaſe the induſtrious population of the kingdom moſt powerfully.

Upon the whole, I cannot but aſſure the proprietors of ſuch ſoils as I have now calculated the improvement of, that the undertaking ſuch a work is amazingly profitable, and impoſſible to fail of ſucceſs: the original expenditure of a very ſmall ſum of money by means of a ſyſtematic and regular conduct, enſures immenſe profit, ſuch as no other profeſſion, buſineſs or application can poſſibly pretend to; an object of the higheſt importance to every landlord poſſeſſing ſuch ſoils!

LETTER XIII.

HAVING, in the preceding Letters, propoſed the improvement of ſeveral ſorts of waſte land, as well as the raiſing the rents of that which is cultivated—I ſhall now, my Lords and Gentlemen, take my leave, with offering a few general remarks on theſe ſubjects—explanatory of certain circumſtances, not ſufficiently touched upon in the former Letters.

I ſhall beg leave firſt to obſerve, that the PUBLICK GOOD is intimately concerned in all ſuch undertakings as I have here propoſed; indeed the general intereſts of the State receive as great benefits as individuals from ſuch works, for the riches of the nation are increaſed;——the income; —and alſo the induſtrious population. The improver makes half a million of money clear profit: this is actually created, and almoſt out of nothing; it is a fund of wealth that did not exiſt before, and is conſequently a clear addition to the nation's tion's ſtock. This wealth in its circulation and increaſe, neceſſarily enriches a vaſt number of people. The increaſe of income is alſo very great. Firſt,

	Per annum.		
	l.	*s.*	*d.*
The improver makes - -	20,000	0	0
The tenant's profit, -	20,000	0	0
The parſon's tythe, - -	2,500	0	0
The induſtrious poor in labour; ſuppoſe, - -	6,000	0	0
The non-induſtrious poor in rates; ſuppoſe, - - - -	2,000	0	0
Wear and tear; being the income of artizans: ſuppoſe, -	3,000	0	0
Thirty-four farms, the leaſt 320 acres of land; ſuppoſe only 15 ſouls *per* head; and that each conſume, in all ſorts of manufactures, to the amount of 5 *l.* it is 75 *l.* *per* farm: or an increaſe of manufacturers income of, - - -	2,500	0	0
Suppoſe all theſe claſſes to pay in the aggregate of all taxes 20 *per cent.* of income, - -	11,100	0	0
It is an increaſe of the public revenue of -	66,600	0	0

Here is a palpable increaſe of national income, to the amount of ſixty-ſix thouſand pounds a year, from an individual putting half a million of money in his own pocket. But the amount of new created income is infinitely more than here ſpecified, or poſſible to calculate; for the landlord's 20,000 is expended greatly in manufactures, and the whole amount of the 66,000 paid by all theſe claſſes to other ſetts, and then again by them to others, and ſo on; in every ſtage of which journey, the public revenue increaſes by its numerous taxes. So that I do not think it would be exaggeration, to aſſert that a creation of 20,000 *l.* a year income, in one individual, could increaſe the general income of the nation leſs than half a million a year. And it ſhould be further remarked, that much of this increaſe is in perpetuity; the decline is gradual; and conſiſts in the claſſes through whoſe hands the money paſſes, conſuming ſuch wares as are paid for in caſh to foreigners:——or ſuch periſhable commodities as yield no employment to the induſtrious; ſuch particularly as horſes, *&c.* It is no objection to this, to ſay that the metal, the *ſigns* of ſuch commodities, continues its circulation; but to follow the idea would lead me too far from the preſent ſubject.

Nor is population of the moſt valuable kind leſs increaſed by ſuch improvements. The creation of people is in proportion to that of income; for no income can exiſt without people, if that income is expended. The landlord with his rent——the farmer with his profit—the parſon—the manufacturers——the government: all the claſſes ſet hands to work, in proportion to the money which paſſes thro' their own: and as the income is *new*, none exiſting before the improvement, the increaſe of work is, by juſt its own degree, the increaſe of population; for the increaſed demand for the one could not be ſupplied without a proportioned increaſe of the other. Here are 34 farmers, each employing 5 men ſuppoſe; from whence came they? they occupy land which was never occupied before. I am anſwered *from ſuch a place*. But whence the men that ſucceed them? and ſo on through the circle. A farmer moving out of one farm into another old one, creates, it is true, as many removals as the death of a biſhop; but they are nothing; the number is the ſame as before. Into a *new* farm the caſe is very different; for though a farmer comes into it, who you knew to be a farmer before; yet, could you trace the whole line of alterations, you would find at the end of it the creation of a new one; or at leaſt ſeveral ſmall, becoming large ones.

But the grand point of induſtrious population being increaſed by ſuch works will admit of no diſpute; and the vaſt importance of ſuch increaſe is equally indiſputable.

For theſe reaſons, men who have the ſpirit to undertake ſuch improvements, have alſo the ſatisfaction of knowing that they add to their country's welfare, in proportion as they increaſe their private wealth. Hence ſurely king's miniſters, and ſtateſmen ſhould give a particular and marked attention to the encouragement of ſuch improvements; and to the means of promoting and acquiring the due knowledge of the ſubject; that clearneſs and preciſion may be found in every circumſtance concerning works of ſo great and indubitable importance.

* * *

I have, in theſe letters, ſo often mentioned the neceſſity of applying the ſums requiſite for improvements, in ready money, and at once—ſo that the works may be under an abſolute certainty of depending on no income or contingencies; that I think it will be very conducive to a right underſtanding of the ſubject, to offer a few explanations of this material part of the deſign.

Improvements upon whatever fund or principle they are undertaken, will always be found very profitable; but to carry them to a tenth of the profit which I have ſuppoſed, it is abſolutely requiſite to proceed upon the plan which I have laid down. Firſt, let the gentleman gain thoſe particulars which are the data of his calculation; then let him proceed to form an eſtimate of the improvement which can be effected by the ſum of money in his hands, or which he is determined to borrow. That ſum muſt be fixed before he takes pen in hand; and upon the right proportioning the annual quantity of land to be taken in, to the amount of caſh, is the principal part of the whole work. Let him take a certain number of acres, and draw up all the expences attending an annual improvement of that quantity, in the manner of the preceding eſtimates, until the product of one year will ſuffice for the expences of the next; eſpecially remembering, that he is to let his farms as ſoon as poſſible, not only to be rid of the trouble, but to be able immediately to mortgage them; and the ſums ſo raiſed by mortgage to be thrown to the product of the preceding year, to form a fund for the operations of the next.

When, in this method of calculating, a requiſite total is gained; he will find whether it is more or leſs than the ſum of money he has appropriated to the buſineſs; if more, he muſt begin again, and calculate for a ſmaller quantity of land; if leſs, for a larger; till he comes pretty near the mark. And that muſt be his guide in the beginning of his whole undertaking. And he ſhould in particular determine to form a farm of ſuch quantity, (and calculate the buildings accordingly) however ſmall: he can mortgage land that is let, much readier than improvements in his own hands which have never been let.

If objections are raiſed to mortgaging the farms as faſt as they are let; the perſons who make thoſe objections ſhould calculate improvements upon any other principle; and they will then find the immenſe difference in profit between ſuch confined operations, and the plans which I have recommended; the one will undoubtedly make an hundred thouſand pounds before the other gets twenty thouſand.

Thus are the operations of lending and borrowing money the grand principle of ſuch undertakings; wherein they are executed upon the plan of moſt public works; ſuch as turnpikes, drainings, navigations, *&c.* If the commiſſioners of ſuch were to expend their income, inſtead of mortgaging it, when would their works be completed?

Such poſſeſſors of waſte land as are of more timorous natures, or who reject the trouble of executing ſuch works, ſhould by all means lend money to underſtanding people, to execute them upon their own account. The man who pays 4 *per cent.* intereſt for money to be expended on the lender's land, when ſuch land will let for nothing without improvement, ſurely pays a virtual intereſt, at leaſt half as important as the real one; for the landlord gains the common intereſt for his money, and his eſtate is at the ſame time improved; an object of vaſt importance to his family, and perhaps even to himſelf. There is much leſs hazard in ſuch a mode of lending money upon perſonal ſecurity than in any other; for the caſh as faſt as received, is expended upon the lender's land, and conſequently he is almoſt immediately put in poſſeſſion of what may be called land-ſecurity; and if the undertaking fails, he has all the expenditure of the money in his own hands to pay himſelf; a caſe widely different from all other modes of lending on mere bond. In proceeding on ſuch a plan, the caution only ſhould be taken of advancing the money borrowed by degrees ——never to refuſe the improver any ſums (within the ſpecified total) provided the caſh already advanced is expended *on the land*: this precaution is only to be ſecure that the money is applied to the uſes agreed to. In ſuch a plan, a landlord who has, or can get money, and poſſeſſes waſte land, ſhould ſeek out for ſpirited improvers to *lend*

them

them money, with as much eagerneſs as other men run to *borrow* it.—But even in this caſe, they loſe the chief of thoſe prodigious advantages which I have ſtated in the preceding calculations: for which reaſon it is much more adviſable to undertake the buſineſs themſelves.

To ſuch landlords whoſe knowledge or practice of agriculture is very confined, many objections will ariſe on the head of conducting ſuch large undertakings, perhaps, without proper men for ſuperintending the works. A gentleman who underſtands and has practiſed huſbandry would be under no great difficulties of this ſort, others might; but then they ſhould commit their improvements to the guidance of ſome other perſon they could truſt.

Of what great uſe in another walk, has been the creation of what may be called a *new profeſſion* in the perſon of a very ingenious man, who has done great things in the ornamenting and laying out of grounds; which, but for him, would in all probability never have been done: conſequently large ſums of money have been expended in a moſt advantageous manner. Many men of large fortunes will expend money freely; but will allow neither time, attention nor trouble. Such muſt commit their undertakings to the hands of others, or they would never be executed at all.

It is much to be regretted that *utility* of the greateſt and moſt acknowledged importance is not, in this reſpect, placed on the ſame footing as *beauty*. There doubtleſs exiſts many landlords, who would diſburſe conſiderable ſums in the improvement of their eſtates; but ſome have not time to direct the execution, and others like not the trouble of it. Hence ſo many eſtates being left in the ſame waſte condition in which they were received. Hence the languid manner in which ſo many improvements are conducted!

But were there a man who could depend ſufficiently on himſelf, to undertake improvements on the largeſt ſcale, and reſt his own gratification on the ſucceſs of ſuch improvements, the grand obſtacle would be removed; all landlords poſſeſſing improvable eſtates, and willing to expend money, if pretty ſure of a large reimburſement, would be encouraged to determine the work of improvement, when the attention and trouble of it were completely removed.

The buſineſs of ſuch an improver would be much more complicated than any that could ariſe in the ornamenting of grounds; it would require a man who was ſo well acquainted with all kinds of ſoils as to pronounce upon examining them, whether they were improvable; to what degree; and for what crops. He ſhould be well practiſed in common agriculture; for thoſe who proceed on theory alone, are apt rather to raiſe brilliant edifices, than lay ſolid foundations. His knowledge of the huſbandry of various countries ſhould be yet greater than his own practice; and he ſhould be perfectly well acquainted with the prices of all ſorts of work, the rates of land, *&c.* in every county, that he may be as little to ſeek as poſſible for data whereon to form a calculation of any given improvement. He ſhould have correſpondents and agents in ſuch counties as poſſeſſed an agriculture ſuperior to the common practice of the kingdom; that the procuring workmen of particular kinds, and even tenants uſed to particular modes of culture, might be no difficult matter to him. The activity of ſuch a buſineſs would require the vigour of a healthy conſtitution——a body that never ſhrunk from the execution of the moſt extenſive ideas. Such a man, from the various practice of a few years, would reduce the buſineſs of improvement to as much certainty as a mathematical demonſtration; and, conſequently, be the greateſt means in the world of reducing all the waſtes of theſe kingdoms to well cultivated farms; and of raiſing the rental of thoſe parts already in culture to their true height and value.—Under a perſon poſſeſſed of ſuch qualifications, and whoſe ſatisfaction (at leaſt by much the greateſt part of it) depended on the degree of his ſucceſs, reckoned after the deduction of every expence whatever ——the grand buſineſs of improvement might be ſecurely undertaken by thoſe, who at preſent cannot with prudence attempt it.

FINIS.

[illegible]